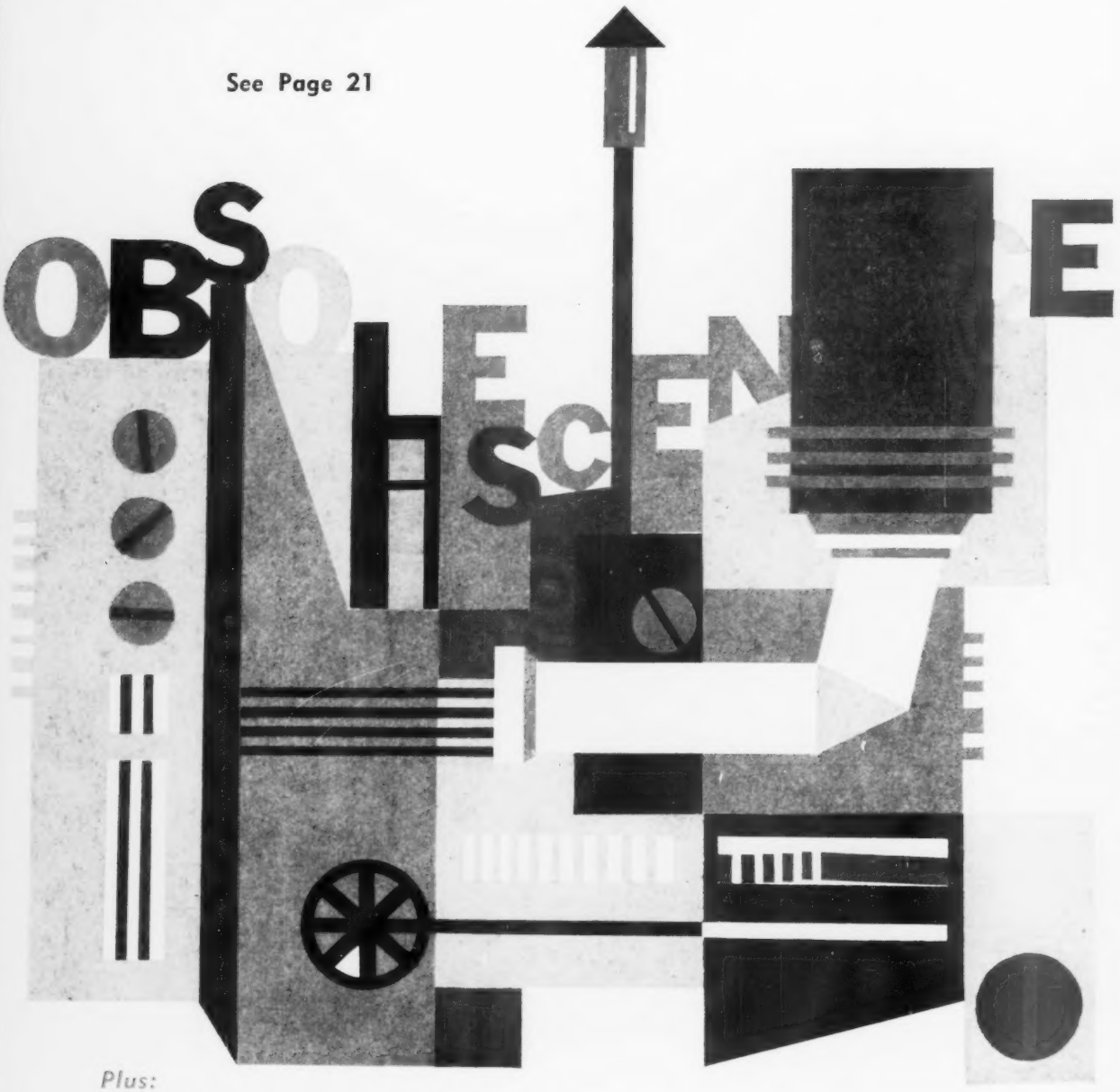
The Magazine of the Registered Professional Engineer

American Engineer

SEPTEMBER 1960

Depreciation and the Engineer — A Missed Opportunity?

See Page 21



Plus:

The P. E. at Parke-Davis

A Philosophy of Architecture

EUGENE B POWER
EDITORAL DEPT-UNIV MICRO
313 N 1ST ST FILMS IN
ANN ARBOR MICH
COMP T 71555 31

LOOK WHAT THEY'RE DOING WITH DEEP STRENGTH ASPHALT PAVEMENTS IN WESTERN KANSAS!

To withstand heavy traffic, sizzling heat, numbing cold...

11-inch sand-Asphalt base is chosen for Kansas Interstate 70

Traffic will soon be rolling on a new DEEP STRENGTH Asphalt pavement section of Interstate 70 in Trego County, Western Kansas. In this part of the country, temperatures range from a numbing 20 below zero in winter, to sizzling 115°F in summer; winds sometimes reach hurricane force.

To meet the demands of expected heavy traffic and extreme weather, Kansas Highway Commission Engineers chose DEEP STRENGTH Asphalt pavement. Notice construction and cross-section (below). See how precepts of the new DEEP STRENGTH Asphalt design are incorporated . . . heavy-duty, **full width** Asphalt Concrete surface . . . **11-inch heavy-duty, sand-Asphalt base** . . . heavy compaction . . . good drainage. Here is strength and durability!

Minimum Maintenance

When built like this—for DEEP STRENGTH—Kansas experience has shown that Asphalt pavement will carry the heaviest traffic loads *without* distress and *with minimum maintenance.*

Make Best Use of Road-building Dollars

Like many other states, Kansas is finding that when Interstate highways are built with Advanced Design DEEP STRENGTH Asphalt pavements, the best use is made of road-building funds. For the Advanced Design Criteria for Asphalt pavements often save money over the cost of Asphalt pavement designed to other standards. The reason is the Advanced Design Criteria permit inexpensive Asphalt base to be substituted, within limits, for more expensive Asphalt concrete surfacing, and allow reduction in total structure thickness when used in place of untreated base.

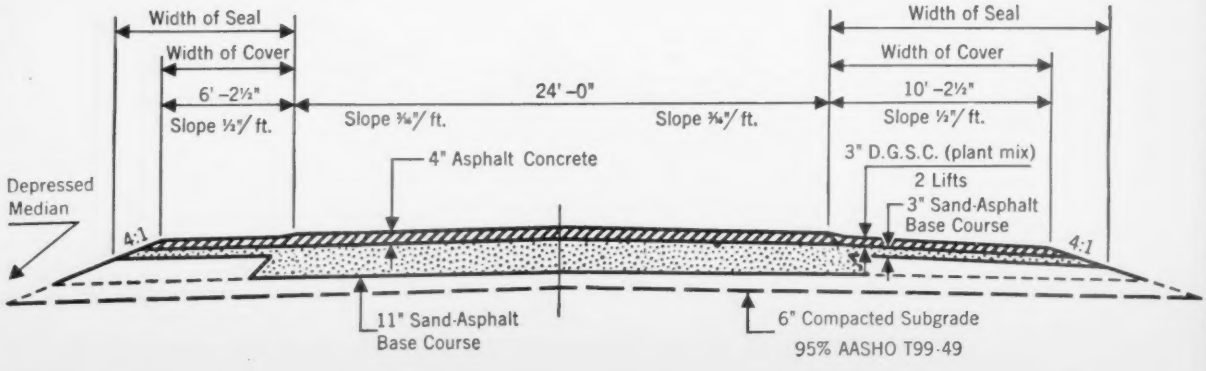
New Handbook

A new edition of the *Asphalt Handbook* incorporating all the Advanced Design Criteria implied by the term DEEP STRENGTH Asphalt pavement is now available at the Asphalt Institute office serving your area.

THE ASPHALT INSTITUTE

ASPHALT INSTITUTE BUILDING, COLLEGE PARK, MARYLAND

TYPICAL PAVING SECTION



Subgrade was compacted and fine graded before road-mixing of sand-Asphalt base.

Local sand shaped in windrow, bladed to reduce moisture to less than 1%, reshaped into windrow, mixed with Asphalt through traveling mixer—aerated and compacted.

Supporting courses are compacted with high contact pressure pneumatic roller to assure smoother riding under all traffic weights to come. Contractor's equipment was permitted on base course during construction of successive layers, which assisted in obtaining maximum density and reducing haul costs.

THIS IS DEEP STRENGTH CONSTRUCTION

A
2-inch surface course

B
2-inch binder course

C
11-inch
sand-Asphalt base

D
Subgrade

Letters to the Editor

?'s for the Dr. . . .

Dear Editor:

The article "Let's Stop Critizing American Education!" which appeared in your July issue certainly calls for comment. One of the best ways to evaluate an organization, be it cultural or commercial, is to take a look at the product. One evaluation of education is given on page 13 of the same issue and I quote, "Many deans were critical of the high school preparation received by engineering applicants. . . ."

There are other indications of slipshod methods that can be readily verified by anyone. Let Dr. Russell explain the following, if he believes that precollege education is satisfactory:

- Why are remedial reading courses being given all over America these days? (Thirty years ago, it was very difficult to find one.)
- Why are so many intelligent youngsters forced to attend private summer schools or be tutored during the summer, if the public schools are doing a good job? (There was little of this thirty years ago.)
- Why are so many colleges forced to give non-credit courses in English and mathematics to enable entering freshmen to do college grade work?

With no apologies to Dr. Russell (who has an ax to grind) it appears that the taxpayer is being hornswoggled by the professional educator. Far worse, however, is the fact that a whole generation of young people is being deprived of a proper education.

JOHN L. EVERHART, P.E.,
Westfield, N.J.

U.S. Education . . .

Dear Editor:

The very interesting article by Dr. James E. Russell, titled "Let's Stop Criticizing American Education" (AE, July, 1960) must be commented upon. American education doesn't only need much criticism but such groups as the various state boards of education and also the National Education Association can stand some serious observation by the professions for some years to come.

I believe that most of your readers will agree that the deplorable conditions that existed in our high school curriculums a few years ago were very likely due to public apathy and lack of attention from the professions, and were primarily due to the influence of the wrong people in the education advisory organizations. President Eisenhower and Past President Hoover were one hundred per cent correct in berating the 1957 education systems, and although their remarks and those of many others who were concerned with the situation caused a definite improvement, our high school graduates are still lacking many of the mathematic, language and science skills that higher education requires. More criticism and prodding such groups as the National Education Association will bring about the needed upgrading.

P. O. KOCK, P.E.
Columbus, Ohio

Registration's Meaning . . .

Dear Editor:

I would like to use this means to thank Mr. John D. Constance, P.E. for his fine article "What Is The Real Meaning Of Engineers' Registration?" appearing in the July, 1960, issue.

I have no argument with his statement that "Through the medium of registration laws, engineers have established the record that, in principle, engineering is one profession, though specialties may be many . . .," however, I would like to pose a question to Mr. Constance in view of that statement.

"Would it be considered legal and/or ethical for an engineer who has received his training and experience in one branch of engineering to employ draftsmen who are not licensed to design engineering projects in other branches of engineering, and then affix his seal to the plans and specifications they prepare?"

As a matter of discussion, I quote a portion of the Kansas registration act with comments: "Graduation in an approved engineering *curriculum* of four years or more from a school or college approved by the board as of satisfactory standing. . . ." Since curriculum has been defined as "branches" of engineering inasmuch as accreditation is given by ECD for curriculums in "mechanical," "civil," "electrical," etc., would it not be assumed that though the act does not state, the board of examiners would not grant a license on the assumption that because a person had graduated as an electrical engineer he was competent to practice all branches of engineering?

If the assumption I have indicated is not valid, then would not the granting of degrees and the accrediting of individual curricula in our universities by branches of engineering be farcical?

W. W. ZOOK, P.E.
Wichita, Kan.

Road to Slavery? . . .

Dear Editor:

Engineers are trained to analyze the conglomerate of any evidence. The segregation of propaganda and facts of any phenomenon, the sun, the moon, whisky, religion, and the engineers' registration offer exercise for engineering talent.

I would like to answer the question discussed in the July issue of your magazine, "What is the Real Meaning of Engineers' Registration?"

Looking at the fundamentals, we find that one of the rights of civilized man is the right to enter into an agreement with others. In the free world before engineering work is done, the engineer exercises his right to enter into an agreement with others who will accept the benefits of his engineering. It is this right that the political authorities operate upon.

Looking at the political authorities we find at the extreme left the communists. Their subjects have no rights. At the extreme right we find the British and other nations very conscious of rights and who refuse the pleas of engineers to impair or destroy these rights. Looking at the United States, we find them willing to go down

(Continued on page 6)

Meetings of Note

Institute of Traffic Engineers—Annual Meeting, September 12-15, Edgewater Beach Hotel, Chicago, Illinois.

Engineering Management Conference—Sponsored by American Institute of Electrical Engineers and American Society of Mechanical Engineers, September 14-16, Morrison Hotel, Chicago, Illinois.

American Institute of Chemical Engineers—National Meeting, September 25-28, Mayo Hotel, Tulsa, Oklahoma.

Standards Engineers Society—Annual Meeting, September 26-28, Hilton Hotel, Pittsburgh, Pennsylvania.

American Welding Society—Fall Meeting, September 26-29, Penn-Sheraton Hotel, Pittsburgh, Pennsylvania.

Association of Iron and Steel Engineers—Annual Convention, September 27-30, Public Auditorium, Cleveland, Ohio.

American Engineer

SEPTEMBER 1960
Vol. 30, No. 9

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
FOUNDED 1934

BPA
Member, Business Publications Audit

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ADVERTISING INFORMATION

American Engineer, 2029 K St., N. W., Washington 6, D. C.

Telephone: FEderal 7-2211

The American Engineer is published monthly by the National Society of Professional Engineers, 2029 K St., N. W., Washington 6, D. C. and printed by the National Publishing Company, Washington, D. C. Second Class Postage Paid at Washington, D. C. Copyright, 1960, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $3 per year in advance to members of NSPE and its Affiliated Societies; $4 per year in advance to non-members in U. S. A. and its possessions, Canada and Mexico. Foreign, $5 per year. Single copy, 50¢.

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LETTERS

(Continued from page 4)

the middle of the road, neither honoring nor destroying the right. The right is regulated and licensed. This means the engineer has traded his freedom from government interference for the expectation of status.

The ultimate of any government issue of status is slavery. The communists have reached the ultimate. We have started on the road which ends in slavery.

R. B. MACFARLANE, P.E.
Richmond, Va.

Esperanto . . .

Dear Editor:

Esperanto is *the* International language of millions of people in the world today. It has a history of over 70 years and has been proven entirely practical and acceptable. (See "Exchanging Knowledge Through Interlingua," AE, April, 1960).

Consider the petition in favor of Esperanto submitted to the United Nations by 16,000,000 people, and the consultative status granted the Universal Esperanto Association by UNESCO at Montevideo in 1954. This association has over 32,000 members in 82 countries, actively interested in the international language.

Over 100 technical dictionaries and vocabularies have been published in Esperanto, and 30 radio stations regularly broadcast in the language. Esperanto is the only official language at many international meetings attended by some 10,000 persons from 40 or more countries, annually.

There are over 33 national Esperanto associations and more than a thousand Esperanto clubs and societies. The United States of America is represented by the Esperanto League for North America (808 Steward Street, Meadville, Pa.) with about 500 members.

WILLIAM P. SIMPSON, P.E.
Harrisburg, Pa.

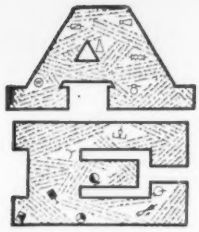
Specialize Less? . . .

Dear Editor:

I want to endorse the news story (page 12) concerning Mr. Eugene McDermott in the July edition of AE. It is a subject on which I have been hammering for more than a quarter of a century.

During my half a century of engineering practice there has developed a myriad of new formulas, methods and engineering products some of which I have had to master as they came out. Each of them rested on basic engineering principles that I was fortunate enough to have had

(Continued on page 50)



"This Month"

The man who conceived, dreamed about, and worked for the NSPE has passed on. A eulogy to Dr. David Bernard Steinman appears on page 9.

"Depreciation and the Engineer—A Missed Opportunity?"—page 21—tells us that the engineer should be the first to be consulted by industry when vital depreciation questions are being debated. Here is a fine appraisal by an expert in the field.

Engineers play an ever-expanding role in the pharmaceutical business and you can find out how in "The P.E. At Parke-Davis," page 27. Here is a real "success story" in engineering professionalism in industry.

"A Philosophy of Architecture" could be termed a "think" piece. In any case, it is provocative and worth a study. Page 36.

Short pieces not to miss—Page 34: Latest on-the-spot report on the important New Jersey McCamy Case dealing with architect-engineer relations. Page 32: The title speaks for itself—"What's the Matter with Engineering Meetings?" Page 31: An excellent round-up of the public relations activities of the NSPE over the years with a sharp look at the future.

In the news:

General. Page 8. The headlines: Meeting to Discuss National Anti-Water Pollution Drive . . . Executives Balk At Hiring Women Engineers . . . Congress Passes Coal Research Legislation . . . Castro Purges Engineers and Other Professions.

Consulting. A Bill introduced by Senator John McClellan of Arkansas would allow the Commerce Dept. to hire consultants at a per diem rate of $100 instead of the present $50. In other stories, town in Maryland throws out competitive bidding requirement for professional services, and in Washington, D. C., a group of consulting people met to find out how consulting engineers could better work with governments at all levels. Page 11.

Education. On page 12. The headlines are: Engineering Schools Spend $71-million on Research . . . Armco-NSPE Scholarship Program Enters Third Year . . . Michigan U. Project Finds New Uses for Computers . . . Civil Engineering Degrees Hit New High At Illinois.

Industry. Amidst egg-throwing, the Association of Professional Engineering Personnel called out RCA engineers for the second time in three years. Story on page 13. Other industry developments: NLRB May Raise 'Technical Employee' Requirements . . . Photogrammetrists Adopt Anti-Bidding Policy . . . Soviet Steel Threat to Be Reviewed at AISE Meet.

Registration. Page 16. Ohio Kinney Caseruling says that Ohio corporations formed prior to 1943 may practice engineering. Another story relates how the Illinois SPE exposed an unregistered engineer, and in still further news we learn of heavy fines imposed by the New Jersey Board for illegal engineering practices.

That's "This Month" for now but mark your calendar for the fall meeting of the NSPE in Denver, October 18-21!

Kenneth E. Trombley

Editor

Meeting to Discuss National Anti-Water Pollution Drive

The development of a national program against water pollution, with strong public support, will be the goal of the first Federally-sponsored Conference on Water Pollution to be held in Washington, D. C., December 12-14, 1960. Over 1,000 persons, representing some 300 national groups and organizations, are expected to attend the 3-day meeting.

Organizations to be invited to the conference will include a broad sampling of national groups with a special stake in maintaining adequate supplies of clean water. Included among the guests will be representatives of organizations in the fields of engineering, conservation, public health and scientific research.

The Conference was suggested by President Eisenhower last February in a message to Congress when he vetoed additional Federal funds for water pollution control. The President said that the proposed conference "will help local taxpayers and business concerns to realize the obligation they have to help prevent pollution. . . . In short (it) will provide a forum in which all concerned can confront and better appreciate their mutual responsibility for solving this pressing problem."

Frank A. Butrico, prominent NSPE member and career sanitary engineer in the U. S. Public Health Service, will head the staff of the December conference in the post of executive secretary.

Additional information concerning the Conference may be obtained by writing to the National Conference on Water Pollution, U. S. Department of Health, Education, and Welfare, Public Health Service, Washington 25, D. C.

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(Circle 1 in Readers' Service Dept.)

Executives Balk At Hiring Women Engineers

Apparently the biggest problem women engineers have with employers is being hired in the first place, according to a study made by the *Industrial Relations News*, a weekly management newsletter.

An IRN study of male executives shows that eighty-one per cent would not hire female engineers, and most of the other nineteen per cent opposed promoting them to any middle-management levels. The survey was taken to find what problems employers encounter in dealing with the women on their staffs. Most problems stem from a failure on the part of management to take the proper measures to fit women into the work staff, it was revealed.

One expert suggests that the three steps in successfully supervising women are to recognize in what respect they differ from men, treat them accordingly, and not let them know it. Learning to deal with women is a necessary step since today one out of every three workers is female compared to the 1920 one-out-of-five figures.

Other findings of the survey show:

Women in the over-35 age group are usually the steadiest female employees. Younger women don't develop the same loyalty to a firm or employer that is found in men. They are also more reluctant to take over-time work due to home interests.

Remembering that while "men can be ordered, women must be persuaded," may be a key to gaining more cooperation from women. Although women have proved successful in supervisory capacities in many industries, most employees, regardless of sex, prefer to work for a man.

Congress Passes Coal Research Legislation

A bill to begin a $2 million a year program to encourage and stimulate the production and conservation of coal through research and development has been passed by Congress and signed into law.

The law calls for the establishment of an Office of Coal Research within the Department of Interior, which will be charged with responsibility for developing, through research, new and more efficient methods of mining, preparing and utilizing coal. The new office is authorized under the law to contract research functions to private organizations and groups. Also authorized are technical advisory committees composed of recognized experts in various aspects of coal research to assist in the examination and evaluation of research progress and of all research proposals and contracts.

Castro Purges Engineers And Other Professions

Engineering is among the professions in Cuba being hit by a general purge of membership groups. Members of a professional organization who are dubbed "counter revolutionary" are expelled from membership in their respective organizations. Expulsion bars the person from the right to practice his profession.

A revolutionary group has also taken action against journalists, public accountants, architects, physicians, pharmacists, and teachers as well as the Bar Association.

The Genius Engineer . . .

The Fighting Heart . . .

Honored by All . . .

D. B. S.

THE one man who more than any other could take credit for the existence of the National Society of Professional Engineers, passed away peacefully at his home in New York City on Sunday, August 21, 1960. He was Dr. David Bernard Steinman.

It was in 1934 that Dr. Steinman called together a small group of engineering leaders and suggested such an organization as the NSPE. It was duly formed and he was named its first president.

Many organizations are created and many soon die because a heart and soul are lacking. David Steinman provided this sustenance. An inspiring figure on the platform, his countless speeches over much of the land gave depression-stricken engineers—many without jobs—renewed faith in themselves and their profession. They rallied to this new movement which offered them little materially but really so much more. What Dr. Steinman *did* promise them was pride in self, pride in profession, pride in public service.

"Twenty-five years ago," he recently told an NSPE audience, "all of this was only a dream. I dreamed of a national organization of, by, and for all engineers—a national organization dedicated to a great cause, a defined, integrated and unified engineering profession.

". . . When I look about me today and see the visible consummation of my dream, I am overwhelmed with emotion, and with the blessed feeling that my life has not been in vain."

Raised the son of an immigrant factory worker in a tenement on New York's East Side, Dr. Steinman grew up in the shadow of the Brooklyn Bridge. This majestic structure so impressed the young lad that he knew he must be an engineer. Even then failure was an unknown quantity to him and he did, indeed, become an engineer, probably the foremost bridge builder the world has known. If NSPE stands as a philosophical monument to him, more than four hundred bridges spanning rivers and harbors throughout the world attest to his further greatness.

With NSPE, ". . . our dream has come true," he said. "We have achieved public and legislative recognition that engineering is a profession, that engineering is a learned profession, that engineering is one profession.

"Whether or not our dedicated part in this achievement will be forgotten, matters little. What counts, in my mind and in my heart, is that this accomplishment for the advancement of our beloved profession will endure. Our work will live after us. We are building not for ourselves, but for posterity."

The world is a lesser place today with the absence of Dr. David Bernard Steinman.

1961 Engineers' Week Kickoff

National Engineers' Week Committee Chairman Warren G. Stadden displays suggested basic poster design for the 1960 observance.

Engineers' Week Theme Adopted To Encourage Engineering Careers

"Engineering . . . A Career of Opportunity" will be the theme for the 1961 National Engineers' Week, February 19-25.

Announcement of the theme was made by Warren G. Stadden, newly appointed National Engineers' Week Chairman. Mr. Stadden, a consulting engineer and architect of Roselle, N.J., was named in July by NSPE President Noah Hull to succeed retiring Chairman Belton Y. Cooper of Birmingham, Ala.

Chairman Stadden pointed out that the 1961 theme was chosen to "help bring home to our young people something of the scope of the career possibilities that are opening up for the engineering graduate in private practice, in industry, and other areas."

Promotional material being prepared for the Week by the National Society will emphasize the variety and magnitude of the engineering knowledge and skill which must be applied as we move into the second half of the 20th Century. The 1961 theme will be the basis for newspaper articles, speeches, and radio and television announcements, and it will be utilized in career conferences for students, in film showings and in exhibits on engineering achievements.

A number of leading engineers in industry, private practice, government, and education are once again being asked to lend their names as individual sponsors of the Week. A complete listing of the 14 sponsors for 1961 will be published in the October issue of the AMERICAN ENGINEER.

The sponsors' names will be used on a letterhead for a mailing to 800 publishers of daily newspapers, 1,000 industrial executives of firms employing large numbers of engineers, and 6,000 consulting engineering firms. This mailing describes the activities and objectives of the Week, and points out that contact should be made with local NSPE affiliates for details regarding participation in the observance.

Promotional kits prepared by the National Society will be sent to state societies and local chapters in mid-October. The kits will contain sections covering suggestions for developing a basic Engineers' Week program at the chapter level. These suggestions will include such things as newspaper publicity on chapter activities, television and radio public service time, special newspaper sections, speakers bureaus, exhibits, and ideas for a variety of special projects. The kits will also contain a sample talk on engineering career opportunities.

Promotional aids such as films for television spot announcements, tape recorded radio announcements, posters, banners, logotypes, newspaper mat stories, lapel buttons, gummed seals, and bumper stickers will be available from the National Society headquarters. Order blanks describing these promotional aids and listing prices will be sent to all local chapters and state societies. A series of "Action Letters" will be mailed from the National Society to keep local Engineers' Week committee chairmen informed as to new ideas for the Week and the availability of promotional material.

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(Circle 2 in Readers' Service Dept.)

Consulting

McClellan Bill Would Raise Per Diem Maximum to $100

A bill recently introduced by Senator John McClellan of Arkansas would allow the Secretary of Commerce to procure the services of experts and consultants at a per diem rate of $100. The previous per diem maximum had been $50.

The $100 maximum, long advocated by NSPE in its efforts to obtain reasonable compensation for consultants performing professional services for the Government, was introduced as an amendment to the Department of Commerce appropriations act at the specific request of Secretary of Commerce Mueller. In a recent letter to Congress, Secretary Mueller drew attention to the fact that the old rate was hampering the operations of the Department. "In years past," wrote the Secretary, "a maximum limitation of $50 per diem . . . has generally sufficed to enable the Department to procure the services of persons who meet Civil Service Commission criteria for experts. In recent years, however, increasing difficulty has been experienced in obtaining the services of individuals who are truly qualified as experts because of the fact that such individuals in private employment now receive compensation at rates substantially in excess of the $50 per diem rate available for serving the Government . . ."

Maryland Town Rejects Bidding for Services

The mayor and town council of Williamsport, Maryland, have decided that a town charter competitive bidding requirement should not be extended to cover contracts for professional services.

The question arose when the Baltimore engineering firm of Whitman, Requardt and Associates submitted a proposal for supervision of construction of a sanitary sewerage improvement program. The town charter requires bidding for any "contractural services" in excess of $1,000, and the question was raised as to the applicability of this section to engineering services. Mr. David R. Poole, Jr., legal counsel to the town, gave the opinion that this section did not apply to professional services and that, accordingly, bids should not be required on the engineering contract. As a result of this opinion, the Council accepted the engineers' proposal.

Consulting Group Studies Government Liaison

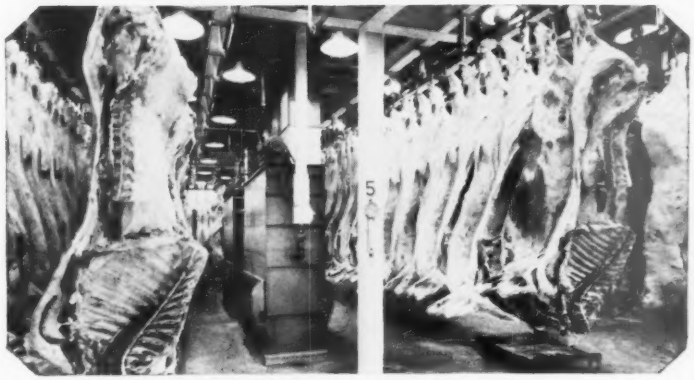
Several engineering organizations met recently in Washington, D.C., to consider ways by which consulting engineers in private practice could better serve and work with governmental groups at all levels.

Attending this most worthwhile meeting were representatives from NSPE, American Institute of Consulting Engineers, American Road Builders' Association, American Society of Civil Engineers, Consulting Engineers Council, and Engineers Joint Council.

EDITOR'S NOTE:

See also page 34 for latest news report on the significant New Jersey McCamy Case.

NIAGARA "no frost"



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Write for Bulletin No. 105

NIAGARA BLOWER COMPANY

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District Engineers in Principal Cities

(Circle 3 in Readers' Service Dept.)

Education

Engineering Schools Spend $71-Million on Research

Engineering schools in the United States reported that they spent $71 million for "earmarked," or sponsored, research and development in fiscal year 1958, according to information released by the National Science Foundation.

Engineering schools received $48.6 million of this total from the Federal Government and $10.3 million from industrial sources. Direct support of R&D from their own funds was $10.5 million, plus an additional $3.5 million to cover the indirect costs of outside-sponsored grants and contracts.

The 129 engineering schools, either independent institutions or affiliated with colleges and universities, were part of a comprehensive survey of expenditures and manpower for research and development in colleges and universities.

Twenty schools reported expenditures of $1 million or above for research and development, eighty-five reported between $25,000 and $1 million, and twenty-four reported expenditures of less than $25,000.

Of the $71 million total, fifty-seven per cent was reported as going for basic research, in contrast to the forty-five per cent reported in a comparable previous study covering fiscal year 1954.

ARMCO-NSPE Scholarship Program Enters Third Year

The third annual program of four-year scholarships for qualified high school students interested in civil engineering will be sponsored again by the ARMCO Drainage and Metal Products, Inc., in cooperation with NSPE.

Arrangements for the scholarships will be made as local chapters submit five sets of scholarship material to their respective state societies for further consideration. The ARMCO Foundation allows for five scholarships of $3,000 each which are granted in amounts of $750.00 per year. Those students selected during the 1960-61 school year will receive the first funds in the fall of 1961.

The first step in the program is the appointment of a scholarship committee by each state society. Names of the chairmen are to be sent to NSPE Executive Director Paul H. Robbins, 2029 K Street, N.W., Washington 6, D.C., with a copy going to Leland Hobson at the Engineering Experiment Station, Kansas State University, Manhattan, Kansas. It is important that state committees be organized soon so that the plan may go into operation.

Michigan U. Project Finds New Uses for Computers

"We're converting the computer from slave to student," is how a graduate student sums up results of a project at The University of Michigan's College of Engineering.

Two major developments are revealing important new uses for the high-speed digital computer. Results will be "generally applicable to every area of engineering analysis, system design and calculations of performance," says Associate Dean Glenn V. Edmonson, director of the project. According to him, these are:

1. A system simulator program that enables the computer to organize and produce a procedure to calculate the performance of a physical system when given a general, technical English language description of the system; and,

2. A program that enables the computer to produce analytical equations, or models, of phenomena that depend on many variable interacting factors.

This second development is used to produce equations for use in programs generated by the simulator. It also helps the research worker to understand his data better by displaying in equation form the most significant factors that apply to his data.

The project from which the developments emerge concerns power plant design and was undertaken with the cooperation and financial support of Consumers Power Co. and Commonwealth Associates.

Civil Engineering Degrees Hit New High at Illinois

The total number of degrees awarded in civil engineering at the University of Illinois during the academic year 1959-1960 reached a new high of 248 with the conferring of 112 degrees at the June, 1960, commencement. The previous high was in 1951 when 232 degrees were awarded, 181 of which were the Bachelor of Science degree. Degrees are also conferred in August, October and February.

One-half of the degrees, or 124, for the year just ended were the Bachelor of Science degree and the other half were graduate degrees. The number of Master of Science degrees awarded this past year reached an all-time high with the awarding of 106, as did the number of Doctor of Philosophy degrees with the presentation of 18.

Undergraduate enrollment in civil engineering at the University of Illinois has been increasing slowly during the past several years and totaled 613 last fall. The number of graduate students has nearly doubled since 1953, increasing from 132 in 1953 to 241 last fall. Increases are expected in both areas in the fall of 1960.

Use AE's Readers' Service Department— See Page 57!

RCA Engineers Called Out When Negotiations Fail

• Workers Throw Eggs in Support
• Agree on 4¾ Per Cent Salary Hike

For the second time in three years, the Association of Professional Engineering Personnel called out its members on strike after negotiations with the RCA management failed to produce agreement.

The six-day strike, involving 2,400 engineers employed at five RCA plants in the Camden, N.J., area, was marred by a day-long egg barrage at the Camden plant and picket line scuffles resulting in the arrest of seven union engineers.

Striking for an 11½ per cent general salary increase and contract control over the company's merit review plan, APEP, currently affiliated with Engineers and Scientists of America finally settled for a 4¾ per cent increase and the right to offer "suggestions" for improving the merit review plan. The company had previously offered a 3-to-3½ per cent salary increase, but had stoutly refused to submit the merit review plan to collective bargaining.

Egg-throwing occurred at the Camden plant when nonstriking production workers refused to cross the engineers' picket line to pick up their pay checks. Snake-dancing and chanting, "We want our pay checks," the more than 3000 workers demanded that they be paid outside the plant. The company finally agreed to set up pay tables beyond the picket lines, but not before hundreds of eggs had been plastered upon the front of the main Camden building some as high as the fourth floor.

Several instances of picket line disturbances were reported, and a total of seven engineers were arrested. Four APEP members were charged with disorderly conduct after having been ousted from what police described as a "slow moving" picket line. One other was charged with assault and battery on a police officer when he tried to prevent officers from arresting the other four engineers, and a sixth man was charged with malicious mischief after an employee charged that his car had been kicked while attempting to cross the picket line. In another car-kicking incident the following day, the arrested engineer claimed he had kicked the car only after it had "brushed" him.

In an effort to prevent further incidents the New Jersey Superior Court issued a temporary restraining order specifying a limit of twelve pickets in front of any one plant gate and setting a minimum interval of seven feet between each.

On the first day of the strike, APEP leaders met with representatives of IUE, AFTE, and Teamsters locals to discuss mutual support in the strike. The production union executive boards pledged their support to the engineers in their strike after APEP officials reportedly came out in favor of affiliation with the IUE. The mention of affiliation with IUE brought an immediate comment from the RCA management:

"APEP's actions toward affiliation with the production and maintenance, teamsters and technician and draftsmen groups mark the beginning of the end of independent representation for professional salaried employees of RCA. Engineers' interests will necessarily be subordinated by CIO leaders to the desires of RCA's 30,000 hourly production workers.

"This affiliation move by APEP's leadership is puzzling since APEP was founded to protect the separate interests of engineers."

A joint statement issued by the IUE, AFTE, and Teamsters said that a mutual security pact had been entered into by all RCA unions, and informed their members that while they intended to honor their contracts, they could not insist that employees subject themselves to "possible harm or danger" by crossing APEP picket lines.

Condemning the action of the APEP engineers, the Executive Board of the Engineering Society of Southern New Jersey, an NSPE chapter, issued a press release stating that membership in a collective bargaining organization is considered unprofessional, and quoted NSPE policy to the effect that professional level performance and unionism are incompatible.

NSPE policy states: "More than twenty years of experience and experimentation demonstrate conclusively that the individual engineer and the engineering profession are best served through reliance upon the professional concept of solidarity in service to the public welfare and avoidance of collective bargaining."

(Continued on following page)

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(Circle 4 in Readers' Service Dept.)

NLRB May Raise 'Technical Employee' Requirements

Following the standards set forth in last year's *Litton* case, the NLRB has consistently held that a title alone does not make a man a technical employee, and recent decisions show that the Board may intend to apply these standards even more strictly in the future.

The critical section in the *Litton* decision held that employees included in a technical unit must do work "of a technical nature involving the use of independent judgment and requiring the exercise of specialized training usually acquired in colleges or technical schools or through special courses."

In the *Litton* case, use of independent judgment and nine months of trade school education were held to be adequate for technical status. However, in a recent decision involving employees of the General Electric Company, the Board indicated a possible trend to higher minimum educational requirements. One of the most noticeable differences between employees held to be technical and those rated nontechnical was that in every case where employees were required to have two years of technical institute training their classifications were ruled to be technical, whereas no employee with lesser educational qualifications was so rated. Included in the production unit were electronic engineering technicians, required by the employer to have a minimum of one year technical institute training and two years of experience.

The two-year educational limit is further underscored in the *Cook Paint and Varnish Company* case. Here, the classifications of control technicians, laboratory assistant, and laboratory mixer, none of which carried formal educational requirements were ruled nontechnical, while the position of laboratory formulator, requiring two years of college training, was held to be a technical employee classification.

Although exceptions to this trend are noted, the Board definitely seems to be raising the standards required for technical employee status.

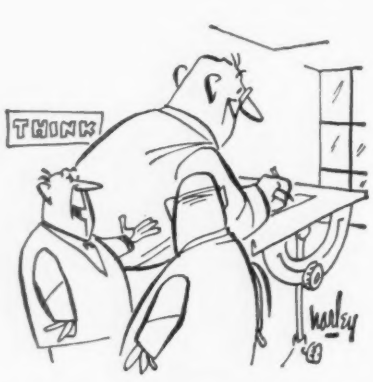
Photogrammetrists Adopt Anti-Bidding Policy

A policy that photogrammetric services should not be bid competitively has been adopted by the Association of Professional Photogrammetrist. In so doing, the APP agreed to accept the conditions of professional engineering status spelled out by the American Society of Civil Engineers in a recent policy statement. Members will seek to meet licensing requirements so early implementation can be accomplished.

ASCE re-affirmed last month its position that certain aspects of surveying (including photogrammetric mapping) are professional engineering activities. At the Reno, Nevada, meeting of its Board of Direction, ASCE said that civil engineers in awarding agencies should no longer solicit competitive bids from photogrammetry firms for their services and that photogrammetric engineers should refuse to bid competitively for mapping projects.

The Association of Professional Photogrammetrists, which represents the major portion of private photogrammetric capacity in the U. S., concurred in this policy move.

"We are agreed that professional photogrammetrists should not offer our services on a competitive bid basis," A. O. Quinn, chief engineer of Aero Service Corporation, Philadelphia, Pa., and chairman of the Association, reported.



"Oddly enough, Biggs is our best man on fine details."

Soviet Steel Threat to Be Reviewed at AISE Meet

A report on developments in Soviet ferrous metallurgy that predicts the production of 91 million tons of steel by 1965 and more than 120 million tons by 1970 (estimated United States production for 1960 will be approximately 110 million tons) will be among the main features of the 1960 Iron and Steel Convention and Exposition. To be held in Cleveland Public Auditorium, September 27 through 30, the event will be the Association of Iron and Steel Engineers' largest. Attendance is expected to be 15,000, with 211 exhibitors.

Supplementing the Soviet report will be a series of technical papers on advanced steelmaking procedure. "It is expected that more trend-setting developments will be presented at the 1960 Iron and Steel Convention and Exposition than at any similar event in steel industry history," stated S. C. Read, president, AISE.

The Soviet report on "Present Achievements and Immediate Prospects of Development in Ferrous Metallurgy" will be presented by Ivan Denisenko, economist, Economic Research Institute, and Roman Belan, metallurgical engineer and head of Iron and Steel Industry Department, State Planning Commission, USSR.

The report will include details on the present seven-year economic development program (1959-1965), which has as its goal production of considerably more than 91 million tons of steel. The authors also will indicate that a production of more than 120 million tons per annum is expected in Russia by 1970.

This technical paper will outline new facilities placed in production this year, including five new blast furnaces, ten large-capacity open-hearth furnaces, three electric furnaces, six big rolling mills, a sheet steel cold-rolling department, steel and iron pipe production sections and eight coking batteries.

Senate Resolution Calls for Public Works Week

A Senate Joint Resolution which would provide for the designation by the President of the week commencing October 2, 1960, as "National Public Works Week," has been passed by the Senate and sent to the House. The measure, S.J. Res. 202, was introduced by Senator Everett McKinley Dirksen of Illinois.

It reads as follows:

"Whereas public works facilities and services are of vital importance to the health and well-being of the people of this Nation, and

Whereas the members of Federal, State and local units of government are responsible for and must design, build, operate and maintain the highway, water supply, sewage and refuse disposal systems, public buildings and other structures and facilities essential to serve the citizens of our country, and

Whereas such facilities and service could not be provided without the dedicated efforts of the public works engineers and administrators of the Nation, and

Whereas the ability of governmental agencies to attract and retain competent persons to provide said facilities and services in the most efficient manner possible, is materially influenced by the people's attitude toward their public servants, and

Whereas it is in the public interest for the citizens and civic leaders of this country to become better acquainted with the public works needs and programs of their respective communities: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the President is authorized and requested to issue a proclamation designating the seven-day period commencing October 2, 1960, as 'National Public Works Week,' and calling upon the people of the United States to celebrate such week with activities and ceremonies paying tribute to the public works engineers and administrators of the Nation and the important work which they perform."

Civil Service Adjusts Engineers' Salaries

The U. S. Civil Service Commission has adjusted starting salaries for GS-9 and above engineers to the bottom step of the pay grades as a result of the 7½ per cent Salary Increase Act of 1960, enacted by Congress over a Presidential veto. Prior to the 1960 Act, minimum salaries for engineers in grades GS-9 through 12 were at the third step of the grade; those in grades GS-13 and 14 were at the second step; and those in grades GS-15 through 17 were at the first step, for which no change was made.

Those engineers starting at the GS-5 and GS-7 level, who formerly were paid at the 7th or top step of the grade, will continue to receive top-step-of-the-grade salaries.

However, the action affecting engineers appointed or promoted to grades GS-9 through GS-14 was taken under the authority of CSC regulations which provide that revisions to the Classification Act pay schedule will automatically change the authorization for a special approved minimum rate to its nearest equivalent on the new pay schedule which does not result in a decrease.

The changes in minimum rates for GS-9 through GS-14 engineers will only affect those persons appointed or promoted to these grades in the future. Persons on the rolls in these grades who were above the first step at the time of the 1960 Act will be paid at the new rate appropriate for their step.

Texas Study Group Claims Many PE's

Perhaps the highest percentage of registered professional engineers of any Federal agency has been reported recently by the U. S. Study Commission—Texas. A biographical listing of the Commission's professional staff shows sixteen engineers of whom fifteen are registered. The Study Commission was established by a 1959 Federal law to provide a mixed Federal, State and local organization to develop a water plan for the sixty-two per cent of Texas drained by the rivers lying entirely within the State.

Among the fifteen licensed engineers, seven are registered in one state; three are registered in two states; four in three states; and one holds licenses from four states. This outstanding record was reported by Charles D. Curran, executive director of the Commission. Mr. Curran is a past president of the D. C. Society of Professional Engineers.

Critical Skills Program Cut Fifty Per Cent

A quota of 1,000 enlistments in the critical skills reserve program has been established by the Department of Defense for fiscal 1961. The new quota is a reduction of 50 per cent from the 2,000 in effect for the previous 3 years. The Coast Guard reduced its quota from 50 to 30.

Data compiled by Selective Service shows that as of May 31, 1960, 14,893 applications had been made for enlistment in the program since March, 1956. On the same date, enlistments since the program began reached a total of 9,257. Active duty for training had been completed by 7,446.

Under the program engineers, scientists, and others, are given a minimum of active duty so that they remain on their civilian jobs which have been determined to be critical to the national security.

Pre-1943 Ohio Corporations May Practice Engineering

- Ruling Result of A. M. Kinney, Inc. Case
- Attorney Cites 1880 Law in Argument

A 1943 amendment to the Ohio engineering registration act, which provided that thereafter no corporation could be granted a charter to practice engineering, does not prohibit engineering companies organized prior to that date from continuing to operate in corporate form, the State Supreme Court recently ruled in a significant test case on the question of corporate practice.

The action arose when the Ohio Attorney General filed a petition challenging the right of A. M. Kinney, Inc., of Cincinnati, organized in 1929, to continue the practice of professional engineering. The Attorney General based his argument on the fact that the original Professional Engineering and Surveying Act of 1933 made engineering in Ohio a profession, and that under basic Ohio corporation law in existence since 1880, corporations cannot engage in any professional pursuits.

The Supreme Court disagreed with this reasoning, however, and based its decision on an interpretation of the original act of 1933 and the 1943 amendment relating to corporate practice. The 1933 act provided that "a firm, or a copartnership, or an association" may engage in the practice of professional engineering. The statutory enumeration of firms, copartnerships and associations coupled with the failure to include corporations, caused considerable uncertainty as to the Legislature's intention, the court declared. However, from 1933 to 1943 administrative officials charged with the incorporation of companies, supported by an opinion of the attorney general, interpreted this section as permitting the incorporation of engineering companies, the court noted.

In 1943, the Legislature amended the act by adding a paragraph as follows:

> "No corporation shall hereafter be granted a charter to engage in the practice of professional engineering or surveying, nor shall any corporation hereafter formed use or assume a name involving the word 'engineer' or 'engineering' or any modification or derivative of such term except a nonprofit membership corporation."

This amendment, the court said, was a curative act, validating previously incorporated engineering companies.

"It is obvious that the 1943 amendment protected and preserved rights; it in no way interfered with or impaired accrued rights, and . . . there can be no doubt of the intention of the General Assembly when it provided that *hereafter* corporations can not be organized for the practice of engineering. Clearly, it was its intent to preserve and validate existing engineering corporations."

Thus, the court concluded, the enactment of the 1943 amendment confirmed the legal status of all incorporated engineering companies organized prior to 1943, "and it follows, therefore, that such corporations may still legally engage in practice." (*State v. Kinney, Inc.*, No. 36489, Supreme Court of Ohio, July 6, 1960.)

Illinois SPE Exposes Unregistered Engineer

The Chicago and Salt Creek Chapters of the Illinois Society of Professional Engineers recently brought to light the case of Thomas O. Miles, Jr., an unregistered engineer who had contracted to do a proposed $2,000,000 sewer and water main project in the Village of Lisle, a Chicago suburb.

An investigation was started when the quality of a report done by Miles' engineering firm was questioned. The city had been charged $2500 for the report. The Ethics and Practices Committees of both chapters discovered upon investigation that Miles was neither a registered engineer nor a graduate of the University of Tennessee, as he had claimed.

Miles claims to have been registered in New Jersey, however, at least since 1953 he had not been registered in any state. Brochures published by his company since that time have identified him as a registered professional engineer.

Although Miles asserts, "I was not operating illegally in any way," the Ethics and Practices Committees of both the Chicago and Salt Creek chapters are in the process of filing criminal proceedings against him. He will be charged with practicing and offering to practice engineering while unregistered in Illinois.

Because Miles was not registered, the Village of Lisle may through court proceedings recover the fee paid to him for the report.

West Virginia Board Adds New Exam Classifications

The State Registration Board for Professional Engineers of West Virginia currently gives examinations for the registration of professional engineers in the branches of aero-

nautical, agricultural, ceramic, chemical, civil, electrical, highway, mechanical, metallurgical, mining, oil and gas, sanitary, structural and industrial engineering. At its last meeting, three new classifications were added and examinations hereafter will be given in nuclear engineering, photogrammetric engineering, and community planning if requested by applicants for registration.

The practice of professional engineering in the State of West Virginia, within the meaning and intent of the law includes any professional service, such as consultation, investigation, evaluation, planning, design, in connection with any public or private utilities, structures, buildings, machines, equipment, processes, work, or projects, wherein the public welfare, or the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of engineering principles and data.

Hawaii Board Secretary Retires After 34 Years

William C. Furer, P. E., has retired after serving 34 years as secretary and executive secretary of the Hawaii Board of Registration for Professional Engineers, Architects and Land Surveyors.

Mr. Furer, now 81, had to retire when a law was passed requiring retirement at 70 of state employees. An MIT graduate, he was instrumental in obtaining a registration law and organizing the Hawaii Board of Registration for P. E.'s, Architects and Land Surveyors in 1923. Registered as both a P. E. and architect since 1924, he practiced as an architect after serving with the U. S. Navy in Pearl Harbor as a civilian structural engineer.

Appointed executive secretary of the Board of Registration in 1947, he held the post until his compulsory retirement in June, 1960.

Use AE's Readers' Service Department— See Page 57!

New Jersey Board Imposes Fines for Illegal Practice

- Heavy Fines for Unlicensed Surveyors
- New Jersey SPE Cooperates with Board

The New Jersey State Board of Professional Engineers and Land Surveyors has recently advised Attorney General David D. Furman that it imposed $3,200 worth of fines for illegal practice of professional engineering or land surveying in New Jersey.

Heading the list of violators of the Engineers' Law, 45:8, were J. L. Jacobs & Company of Chicago and Robert H. Pinder of Stroudsburg, Pa. According to the Board's report, each was penalized $1,000, the Jacobs firm for violations in connection with the tax maps of the Townships of Wantage, Frankford, Hardyston, Walpack and Sandyston, because no member of the firm is a licensed land surveyor in the State, and Mr. Pinder for similar violations in five Townships.

The Board also reported the following offenders, along with the fines imposed:

William J. Richards Company, Inc. of Cornwall, N.Y., $400 for practicing land surveying without a license in connection with tax map work in the Townships of Hamburg and Fredon.

H. Emerson Thomas & Associates, Inc. of 111 Quimby Street, Westfield, $200 for practicing engineering in violation of the act.

Norman K. Pearson of Kunkleton, Pa., $200 for affixing his New Jersey land surveyor's seal and his signature to work which he did not perform.

Gordon L. Brown of York, Pa., $200 and revocation of his New Jersey land surveyor's certificate and license for affixing his seal and his signature to tax map work which he did not perform.

Keystone Mapping Company of York, Pa., $200 for illegal use of the term "engineer" and for performing tax map work in New Jersey without having a New Jersey licensed land surveyor as a member of the firm.

Subsequently on June 1, six more New Jersey residents or firms were penalized by the State Board for various violations of the Engineers' Law. In each case, a penalty of $200 was imposed.

Arthur Von Shillagh of 13 Pershing Ave., Elizabeth, who aided in preparing the architectural plans for a subdivision was penalized for practicing engineering without a license.

E. Fred Sulzer & Company of 27 South Union Ave., Cranford, received the penalty for representing itself as an engineering firm in its advertising.

Nebetco Engineering Company of 1107 Chandler Ave., Roselle, paid $200 for the illegal use of the term "engineering" in the company name and elsewhere.

L. R. Tichenor & Sons of 1318 North Broad St., Hillside, and 'Automatic' Sprinkling Corporation of America, Kenilworth, were penalized for the illegal practice of engineering.

Chase & Van Sant of 331 Ampere Parkway, Bloomfield, also received the penalty for the illegal use of the term "engineer."

Some of these actions were the direct result of the close cooperation of the New Jersey State Society Ethics Committee chairmanned by Robert McEldowney, Jr.

NCSBEE Meets

The National Council of State Boards of Engineering Examiners met late last month in Portland, Ore. High on the agenda was proposed changes to the Model Law.

A full report on the gathering will be carried in the October AMERICAN ENGINEER.

Strictly Business

Personalities . . . **Verne L. Ketchum** has retired after serving for twenty years as the head of the engineering department of **Timber Structures, Inc.** . . .

Mr. Ketchum

Jack R. Grieve has joined the Metallurgical Department at **Superior Tube Company,** Norristown, Pa. . . . **Babcock Radio Engineering Inc.,** has announced the appointment of **B. V. Deltour** as assistant to the president . . . **Donald R. Gray** has been named coordinator of building panel development in the Plastics Department of **The Dow Chemical Company,** Midland, Mich., and **G. R. Franson** will replace him as head of Plastics Technical Service section . . . **Space Electronics Corporation,** Glendale, Calif., has announced the appointment of **Ken Fugate** as a member of the technical staff . . . **Russell P. Wibbens** has joined the **American Institute of Timber Construction** Washington, D. C., as an engineering assistant . . . The appointment of **Orville Beck** to the post of chief engineer of specialized equipment for **Fruehauf Trailer Company,** Detroit, Mich., is announced . . . **Mervyn E. Shopenn** and **Albert M. Waifer Jr.** have joined the Military Products Division of **Adler Electronics, Inc.,** New Rochelle, N.Y.

William W. Kolyer has been appointed assistant district manager of **American Potash and Chemical Corporation's** eastern market development office, according to **Dr. Howard E. Kremers,** district manager . . .

Mr. Hannan

T. J. Harris, vice president and general manager of **Aero Design and Engineering, Co.,** Bethany, Okla., has just been elected a director of that company, a wholly owned subsidiary of **Rockwell-Standard Corporation** . . . **C. Harold Hannan** has been promoted to the position of director of research at **Miniature Precision Bearings, Inc.,** Keene, N.H., according to Executive Vice President **William M. Scranton** . . . **Dean W. Flygstad** has joined the professional staff of **Telex, Inc.,** Minneapolis, Minn. . . . **Donald K. Skoog** has been appointed to the newly created position of director of engineering, **Remington Rand** Systems-Photo Records Division of the **Sperry Rand Corporation,** New York, N.Y. . . . **B. C. Smith,** New Mexico district engineer for **Portland Cement Association,** has announced the appointment of **Kenneth D. Hansen** as a field engineer with headquarters in Albuquerque . . . **Anton E. Christensen** has been appointed manager of engineering, and **Henry N. Nerwin,** chief engineer-electronics, for the **Magnaflux Corporation,** Chicago, Ill.

Charles F. Simmers has been named chief engineer of the Engineering and Construction Division of **Koppers Company, Inc.,** Pittsburgh, Pa. . . . **George Havas** has been appointed vice president and director of engineering of **Kaiser Industries Corporation,** Oakland, Calif., according to President **Edgar F. Kaiser** . . . **Dr. Eugene W. Boehne** has joined the engineering staff of the **I-T-E Circuit Breaker Company,** Philadelphia, Pa. . . . **Earl J. Reddart** has retired from the post of director of engineering after a 35 year career with **Colgate-Palmolive Company** . . . The appointments of **Anthony Eleuteri** as engineer-in-charge, Transformer Engineering Department, **Pieter Wiederhold** as project engineer, and **Albert Zack** as section head, Wafer Engineering Department, at the Ipswich, Mass., plant of **Sylvania Lighting Products,** a division of **Sylvania Electric Products, Inc.,** have been announced . . . **Dr. Jack B. Blackburn** has accepted a position as professor of civil engineering and director of Transportation and Traffic Institute, University of Arizona, Tucson . . . The appointment of **James W. Leonard** as senior application engineer, New Products Department, is announced by **S. H. Hanville,** manager of sales and application engineering, **Jack and Heintz, Inc.**

Mr. Reddart

W. W. Burnett and **Robert E. Shrader Jr.** have joined **Ampex Data Products Company** as sales engineers . . . **Jacob Rabinow,** president, has announced the election of **Dr. Nicholas E. Golovin** as vice president and general manager of the **Rabinow Engineering Company, Inc.,** Takoma Park, Md. . . . Appointment of **Robert C. Clark** as vice president and general sales manager of **Nobel Company,** Oakland, Calif., has been announced by **J. D. Nobel,** company president . . . **Robert J. Collins, Ronald G. Graham,** and **Robert J. Macur** have been appointed engineers in the Manufacturing Department of **Amoco Chemicals Corporation,** Chicago, Ill. . . . The Abrasives Division of **Elgin National Watch Company,** Elgin, Ill., has announced the appointment of **Richard Hart** as a direct field engineer for the diamond products of the division . . . **Col. Anson D. Marston** has retired from the position of deputy division engineer in the Missouri River Division office of the **U.S. Army Engineers** . . . **Harry H. Kirchman** has resigned from the post of director of public works and engineering for the city of Fridley, Minn., to open a Commercial and Industrial Development Promotion office in Minneapolis.

Mr. Clark

Money Is Everything!

Well, almost. In any case, it is hard to beat when it comes to business! And money—$19 billion of it—is what the 60,000-plus readers of the AMERICAN ENGINEER spend every year for dozens of products—civil, electrical, mechanical, and chemical. Check the products below and the amounts of money AE readers invest in them annually. Then write the AMERICAN ENGINEER for the complete survey of readers' purchasing habits as made by E. M. Brooks Survey Associates, an independent Washington, D. C. organization, long prominent in complex governmental statistical work.

P.S.: Show this page to your advertising manager—he'll be pleased you did!

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Asphalt	250-million
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Cable	490-million
Cement	578-million
Concrete and Cement Curing Material	967-million
Control Instruments	154-million
Conveyors	107-million
Electric Motors	537-million
Electronics	222-million
Engines	170-million
Heat Exchangers	370-million
Indicating and Recording Instruments	125-million

Product	Amount Purchased Annually
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Lighting Appliances	437-million
Materials Handling Equipment	116-million
Paints	55-million
Piling	400-million
Pressure Vessels	264-million
Prestressed Concrete	711-million
Steel, Alloy	531-million
Steel, Structural	3-billion
Steel, Tubing	191-million
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Transformers	407-million
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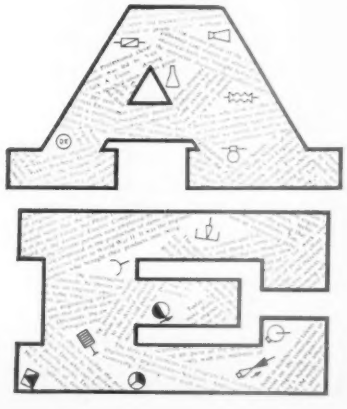

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Depreciation and the Engineer – A Missed Opportunity?

By
MAURICE E. PELOUBET, C. P. A.
Pogson, Peloubet & Co.
New York, N. Y.

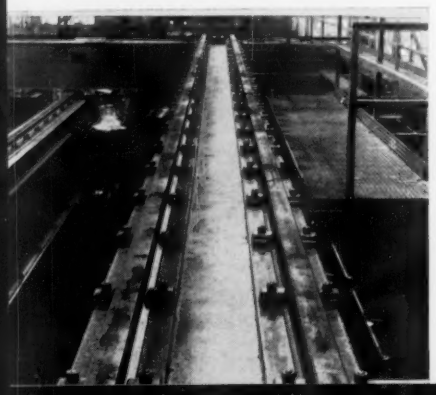
THERE is no subject more closely concerned with engineering than the determination of wear and tear, obsolescence and the advantages and costs of replacing machinery and equipment in current use.

The engineer is probably the best fitted of any of the professionals who serve business to estimate the effects of technological change and the probable time at which machinery and equipment will become obsolete and should be replaced. He is best fitted to determine the extent of physical wear and tear and the type of machine which should be bought to replace one which has become obsolete or which has worn out.

He can also provide the information, often of crucial importance, on which to decide, whether to construct a machine, in whole or in part, as opposed to buying it from a machinery manufacturer. Another question he can often answer is whether to rehabilitate a piece of out-dated machinery instead of selling or scrapping it.

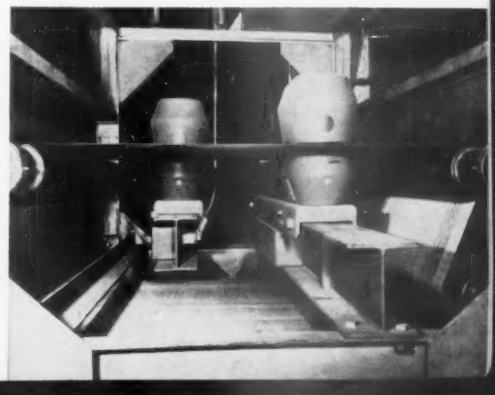
In spite of all this, the engineer, while not entirely excluded from the consideration of depreciation questions, is not consulted as often as are other, and often less qualified, professionals and officials.

As a general rule the financial and accounting officials and consultants administer depreciation policies and methods. This has a tendency to obscure the fact that, so far as the technical and operating features of depreciation are concerned they are laymen and should rely on engineering advice for the basic information on which to determine useful lives, choice of depreciation methods, provision for obsolescence and decisions on when and whether to discard worn-out or



Left: When these trolley rails wear out should they be rehabilitated or scrapped? An engineer should be in on the decision.

Right: Increased use of atomic energy will hasten obsolescence of existing machinery. Here a beta gauge is used to monitor rolls of rubber.



obsolescent machinery and equipment.

What specifically should be expected of an engineering consultant or executive in the field of depreciation? What engineering data are required by the financial and accounting executives in order to determine the proper lives and depreciation methods to be used? What is the responsibility of the engineering department for property records? Should the engineering department or consultant be required to maintain property records on a current value basis?

To determine useful lives the engineer should first estimate what may be called the ultimate life, that is, the period during which, given proper maintenance, the machine will produce satisfactorily. This does not mean the extreme limit of time in which any production at all can be obtained but the time during which satisfactory and efficient performance can be looked for.

It seldom happens that there is so little change or improvement in any art or industry as to make it possible to operate a machine during its entire maximum physical life and this life must, therefore, be reduced to the period in which it will operate as well and efficiently as any other similar machine.

Obviously, no one knows at the time of original purchase when a better machine than the one just purchased will be developed. However, an engineer familiar with a particular industry can often make such estimates with surprising accuracy. He will know, from professional colleagues, society meetings and professional literature what problems are engaging the attention of his professional brethren and what progress is being made. In any event, the estimate of the probable time of complete obsolescence must be made and there is no one better qualified to do this than an engineer familiar with the technical background of a particular industry or group of industries.

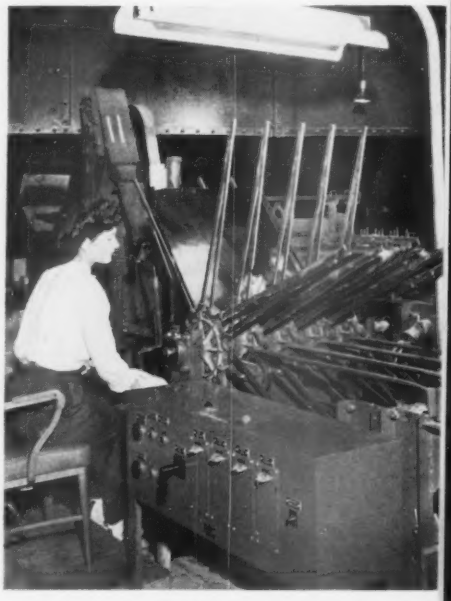
Statements by administrative or accounting executives, no matter how well founded, will not have the weight with the Treasury, the Internal Revenue Service or the public that a soundly supported engineering estimate will have.

It is hardly necessary to enlarge on the ridiculous concept of "obsolescence which has already occurred" or "accrued obsolescence." We all know obsolescence means the process of becoming obsolete, not the fact that something is already obsolete or certain to become so. If equipment is completely obsolete, this will be recognized by retirement of the property, and if this is what obsolescence means in the revenue statutes, it is of little practical significance. What obsolescence means to a businessman, or for that matter, to the compiler of a dictionary, is something quite different. It is the state or process of becoming obsolete. If equipment now operating satisfactorily will be displaced, say in three to five years, with other equipment which is in the process of design or development, the first equipment is already obsolescent and should be provided for in two or three years regardless of its physical life. If the raw material on which a machine works is, for example, a mineral which will be exhausted and unavailable in a short time, and if the machine cannot be adapted to another material, it is obsolescent and should be written off over the time in which the material is expected to be still available.

As soon as plastic was invented which was suitable for piano keys, a large amount of machinery designed to cut and polish ivory was obsolescent and in a few years became obsolete. Obsolescence caused by technological improvements either in equipment or materials or by change in fashion or design is occurring constantly and can often best be judged by a well-informed engineer.

A practical way in which the management of a company can cooperate with the engineer in getting some recognition of obsolescence is to record in the minutes of the board of directors a statement that certain specific machinery will be replaced within a certain time and that appropriations have been made for the machinery to replace it, or that plans have been drawn up or commitments made, or whatever the facts may be that substantiate the statement that present machinery will be replaced because of obsolescence at some definite time short of its ultimate physical life. The engineer can then refer to this in his report, which in turn can be used with the Internal Revenue Service to substantiate an additional deduction.

A knowledge of industrial methods as well as values is part of the engineer's equipment; and in his appraisal of both the value of the equipment and its useful life, he should give full weight to these factors. One example of this is the probable change in automobile engines from blocks made of iron to aluminum. If this change is made, no matter how long it takes for aluminum engines to become universally used, the foundries and all the other equipment necessary for the production of cast iron engine blocks will be obsolescent and will shortly become obsolete. The accountant can make full use of the information he receives from engineers on these questions and he can often guide the engineer in arriving at his results. However,



By the mere flick of a lever, this U. S. Steel worker examines both sides of this tinplate without manual handling. The "life expectancy" estimate of such intricate machinery is an engineering problem.

he is not equipped to do the engineering work himself.

One of the primary purposes of accounting is the control of physical property as well as keeping the records necessary for this. The management of an enterprise is responsible, not only for the operation of the enterprise, but for the control and preservation of its property. In this work the engineer takes a most important part.

Property records compiled from financial sources indicate the property which should be on hand and for which the management is responsible. It frequently happens that the physical property does not correspond exactly to the financial records. Property which is completely written off may be operating. Tools and equipment charged to expense may be on hand. Machinery and equipment which was scrapped may, for example, still remain in the accounts, or the money received for the scrap value of other equipment may have been buried in some such account as "Miscellaneous Income." All this is quite wrong, directly opposed to accepted accounting principles and practices, and is a clear indication that several people are not doing their jobs.

If a plant ledger is kept and if this ledger is to be used as a method of control, then the property actually on hand must be compared periodically with the records. This is somewhat the same as a physical inventory of materials and supplies. However, as such a verification is not required, either for the determination of taxable or corporate income, it is seldom taken with the care devoted to inventories of materials and supplies nor at such frequent and regular intervals.

It is unusual in most businesses for this to be done by company employees regularly assigned to this work. It is usually considered to be a sort of "spare time" job—something in addition to an employee's usual work. On this basis it can seldom, if ever, be done satisfactorily.

There is also a wide area for the exercise of judgment in checking the accuracy of the financial records with the actual property, and it is frequently desirable for this to be done by someone who has had no connection with or responsibility for either the records or the property.

For all these reasons, it is often desirable for the plant records to be checked periodically by an independent appraiser or valuation engineer. There is still another reason for this. If a capable and impartial engineer makes a periodic examination of useful lives, the Internal Revenue Service will generally accept the results. Where obsolescence is an important factor, this reestimate of useful life is particularly important because regardless of statutory provisions and the wording of regulations, almost no recognition, as a practical matter, is given to expected obsolescence in rates permitted to be used by the Internal Revenue Service.

There is another field in which the engineer can provide information and figures which should be used by the accountant and by business management. This is in the determination of the current value of machinery and equipment and other depreciable property.

The accountant is generally responsible for seeing that his client is properly covered by insurance. With small enterprises his responsibility is greater, but in any case the accountant should satisfy himself either that his client's coverage is adequate or that he has had proper advice on his insurance matters. In any event, the accountant should satisfy himself that his client's insurance is based on current values rather than on some previous cost, and he must generally rely on some type of engineering appraisal for the current value.

Current values also have an important function in cost accounting. Even where current values and depreciation based on current values are not used for any other accounting purposes, they are sometimes used to calculate the amount of depreciation in standard or estimated costs. This question is becoming more and more important, as with the growing complexity of machinery and with the growing tendency to substitute automatic controls and operations for manually controlled or directed ones, the element of depreciation becomes more and more important.

The engineer can arrive at his current values by one of two methods or by a combination of them.

New products figure in the determination of whether equipment is any longer "up-to-date." Believe it or not, the drawbar shown above is made of "Delrin," a new plastic.

He can apply present prices of individual items to the same items purchased in the past, or he can apply some appropriate index numbers to the entire amount of property. Techniques have been worked out by which present prices on equipment purchased in the past can be developed, even though in many cases present-day equipment, while it may perform the same or additional functions or operations, does so by a different and improved method. In general, the index number method of arriving at current values is simpler for accounting purposes, both for correcting depreciation to a current value basis and for calculating depreciation for cost estimating.

There are, however, some situations where the use of present prices for specific items is necessary or at least highly desirable; for instance, in the purchase and sale of a business, or, for insurance purposes. Here the use of present prices for specific items is much to be preferred over a calculation by index numbers. For tax depreciation purposes, it might be possible to provide in any future legislation for the use of properly substantiated present prices in place of the index number calculations.

While these are perhaps matters of detail rather than principle, they may at some later date be of great interest both to taxpayers and engineers. In any event, the taxpayer should be entitled to recover the current value of his machinery and equipment because he must replace at current value. Whether he replaces exactly the same or similar equipment is immaterial, because he is entitled to recover his real investment and to reinvest the current value in other depreciable property if he is to maintain his original investment in property, things, rather than in an amount of constantly declining dollars.

It seems quite probable that some type of legislative reform of depreciation will be enacted in the next session of Congress. The Treasury Department sent out in July of this year a questionnaire to industry to collect information on which to base recommendations to Congress. Hearings have been held on depreciation before the Ways and Means Committee and before the Senate Small Business Committee. The Republican Party has a plank in its platform adopted at the recent Convention, which specifically recommends reform in depreciation legislation. Regardless of the type of reform which is enacted, it will be necessary to have better and more accurate property records, and to have better information on useful lives, obsolescence, and the current value of machinery and equipment.

Of all the professionals serving business, the engineer is the one who should be consulted first and most frequently in the determination of depreciation rates and policies. This, however, is seldom the case. The field of depreciation seems to be pre-empted almost entirely by economists, accountants and lawyers. Eleven witnesses on depreciation appeared before the Ways and Means Committee in the November, 1959, hearings, but there were no professional engineers among them. Instead there were six economists, three accountants, and two lawyers.

Depreciation rates, methods and policies are fields in which the professional engineer should play a much greater part than he does at present. He should provide original thought and leadership in addition to merely furnishing technical information and leaving the determination of policies to others.
—End.

About the Author . . .

Mr. Peloubet

Maurice E. Peloubet was born in Chicago, Illinois, and attended school there, in Butte, Montana and East Orange, New Jersey. He entered the New York office of Price Waterhouse & Co. in 1911 and also attended New York University School of Commerce, Accounts and Finance. He was transferred to the London office of Price Waterhouse & Co. in November, 1911, and worked on engagements in England,

(Continued on page 51)

FROM WASHINGTON

BY
MILTON F. LUNCH,
N.S.P.E.'s Legislative Counsel

The Party Platforms ►

The traditional view of political party platforms is that they "are to run on, not stand on." There is much in political history to justify this somewhat cynical view. This makes it all the more interesting to speculate on the fact that in both political conventions this year there was an extraordinary interest in the content of the platforms. Perhaps this may be accounted for by the relative lack of excitement and competition over the selection of the presidential nominees of both parties. A more hopeful reason which has been advanced is that the voters are more aware of policies and issues and therefore the platforms will not be largely ignored by the voters in making their choice. Whatever the reasons for the high degree of interest, it can only be a healthy sign that more voters should be aware of what the parties mean to do for them (or to them), depending upon one's point of view.

◄ The Science Plank

For the engineering profession, the most significant point in both platforms is the inclusion of a plank on science. The day of miracles has not yet arrived and therefore one still finds the planks written mainly in generalities and platitudes. Nevertheless, both parties have recognized the all-important role of engineering and science as related to virtually every other national problem covered in the platforms.

The Democrats declare "we will recognize the special role of our Federal Government in support of basic and applied research," to which the Republicans respond in similar terms, but with more detail and with their "profound gratitude to the great scientists and engineers of our country, both in and out of government, for the remarkable progress they have made."

As might be expected, the Democratic platform is critical of the current space exploration program and promises to "bring top scientists into positions of responsibility," and to "undertake long-term basic research in space science and propulsion." Likewise, on atomic energy, the Democrats charge the Administration with "the gradual deterioration of United States leadership in atomic development both at home and abroad." The plank promises seven points to overcome the alleged shortcomings, ranging from nonpartisan administration to augmentation of the nuclear submarine fleet.

The Republican science plank, as may be expected, speaks in glowing terms of the accomplishments of the past seven years and promises that the Government will "continue to take a responsible role in science to assure that worthwhile endeavors of national significance are not retarded by practical limitations of private and local support." In specific areas, the plank proposes the Federal role in research to be in the area of basic research, which industry cannot be reasonably expected to pursue, and applied research only in fields of prime national concern, such as national defense, space exploration, public health and use of natural resources. The Republicans endorse the contracting by government agencies for research and urge allowance for reasonable charges for overhead and management.

Significantly, neither party refers to or endorses the oft-promoted idea

of a Department of Science. The Republican plank, by inference, rejects the idea by approving the continuation of the advisory committee to represent the views of the scientific community to the President, and of the Federal Council for Science and Technology to foster coordination in planning and execution.

Government Educational Role ►

Both party platforms place heavy stress upon the future role of government in education. The Democratic plank pledges assistance "in building the classrooms and employing the teachers." The plank calls for a program of loans and scholarship grants "to assure, that qualified young Americans will have full opportunity for higher education, at the institutions of their choice, regardless of the income of their parents." The Republicans, no less, favor extension of the Federal student loan program and the graduate fellowship program under the National Defense Education Act. Likewise, the Republicans call for Federal aid for school construction, but definitely oppose "direct contributions to or grants for teachers salaries (which) can only lead ultimately to federal domination and control of our schools to which we are unalterably opposed." The Democrats specifically propose Federal funds for salaries.

Both parties favor Federal assistance in the construction of college housing facilities, but the Democrats would also add aid for the building of academic facilities. The Republican plank suggests the establishment of a national permanent, top-level commission to advise the President and the Secretary of Health, Education and Welfare, "constantly striving to focus the interest of each citizen on the quality of our education at every level, from primary through post-graduate, and for every age group from children to adults."

National Resources and Labor ◄

In other aspects of engineering interest, the platforms contain references to:

***Natural Resources*—Democratic: Adoption of the multiple-purpose principle; development of a comprehensive national water resource policy; new starts on dams, hydroelectric facilities, flood-control works, navagation facilities and reclamation projects; speedup in research on saline water program; direct Federal aid on water and air pollution control, including building sewage treatment plants.**

Republican: development of new water resource projects; adherence to state control to govern water rights; continued support for saline water program; establishment of a citizens board of conservation, resource and land management experts; use of interstate compacts "to handle regional aspects without federal domination."

***Labor*—Democratic: Opposition to state "right to work" laws as permitted by the Taft-Hartley Act and a promise to repeal the authorization. Significantly, however, the Democratic platform does not mention the "common-situs" picketing legislation which would allow unions in the construction industry to strike all contractors or subcontractors at the site even though it had a dispute with only one. Nevertheless, upon the return of Congress the Democratic leadership has listed the legislation on its priority list for the "bob-tailed" session.**

Republican: The Republican plank is in stark contrast to that of its rival by upholding the Taft-Hartley Act and the recent labor reform act, but it makes no reference to the state "right to work" law issue.

Copies Available ►

Almost every other aspect of the party platforms has some bearing on engineering and scientific interests, and vice versa. The topics, other than those mentioned previously, covers foreign policy, arms control, government administration, cities and suburbs, housing, small business, economic growth, and a host of others.

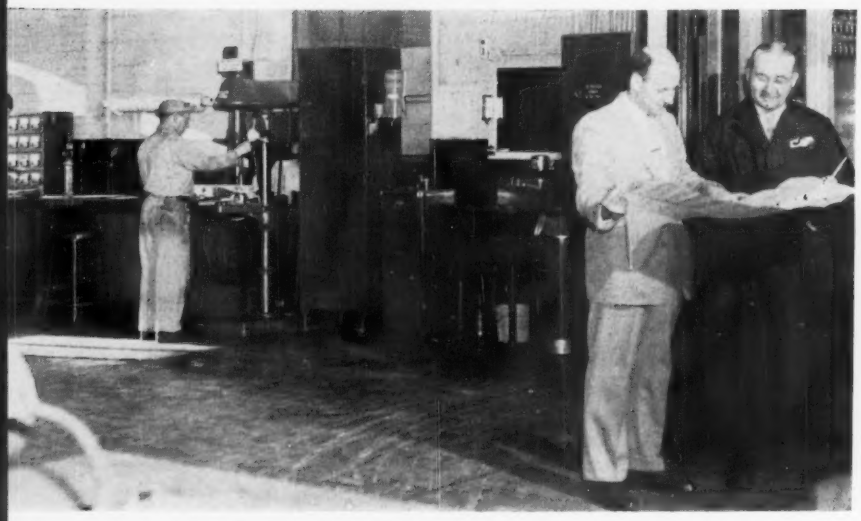
Those who take a lively interest in political affairs would do well to secure the full platforms from the party headquarters: Republican: 1625 Eye St., N. W., Washington 6, D. C.; Democratic: 1001 Connecticut Ave., N. W., Washington 6, D. C.

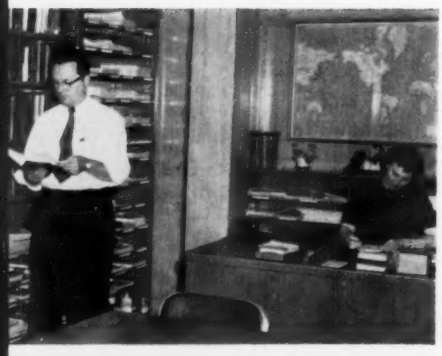
THE P.E. AT PARKE-DAVIS

By

FREDERICK A. DIETER, P. E.

Superintendent of Plant Engineering
Parke-Davis & Company





Above, right: Louis Plath and Hugh Garrity check the meter load readings at the power plant panel board. **Above:** Robert Farrel, left, reviews overhaul of packaging equipment with machine shop foreman, Ben Pemberton.

Left, above: Alan Ameel looks over material assembled for him by Mrs. Gloria Evans, engineering librarian. **Left, below:** Model of the recently completed $13,000,000 Research Medical Center at Ann Arbor, Michigan. Project engineer was Richard Melcher.

ALTHOUGH Detroit is usually thought of in terms of automobile manufacturing, it is also the home of one of the world's largest pharmaceutical companies. Parke-Davis, famous for many firsts, introduced the principle of chemical standardization as far back as 1879, and is the proud possessor of U. S. License No. 1 for the manufacture of biological products. An ethical pharmaceutical company, it primarily produces drugs that are prescribed by the physician. It is only natural that a company which places the highest premium and priority on quality should actively promote the registration of its engineers. Our staff at Detroit consists of architectural, mechanical, chemical, electrical, civil, and electronic engineers. Problems range all the way from maintaining and modifying existing equipment to the design and construction of pharmaceutical plants and research laboratories.

Michigan, long a leader in the educational field, was one of the first states to establish registration laws for engineers. To qualify for a license here the applicant must take a written examination, unless he holds a license from a state recognized by the Michigan State Board.

For the more recent engineering graduates, the two-day written examination does not present too serious an obstacle. However, for the engineer who has been out of school a number of years, the technical examination may pose a real problem. Review courses offered by the Engineering Society of Detroit and the local universities are sup-

Sam Bela views construction on site of plant expansion at Parksdale near Rochester, Michigan.

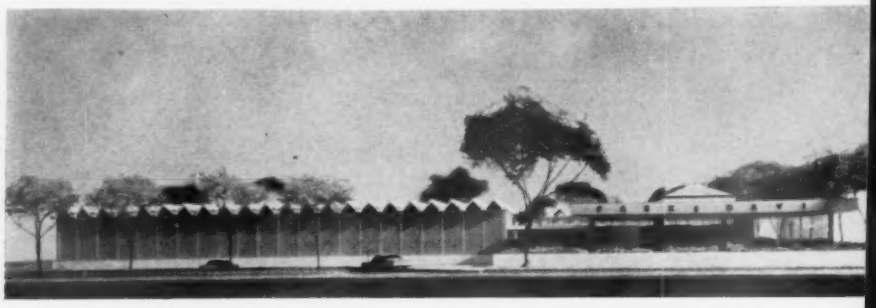
plemented with individual group review sessions here at the plant. There is, of course, no substitute for the review and self-development on the part of the individual engineer. What comes hard is appreciated most.

The company, in turn, encourages the engineer to take the licensing examination by reimbursing him for half of the associated tuition costs and fees when he attains his license. As a result of this program, the Engineering Division now has 54 per cent of its graduate engineers registered in the State of Michigan with over 90 per cent of the remainder engaged in study programs for licensing. Like all progressive companies, Parke-Davis recognizes its own reputation and integrity is enhanced by having registered engineers on its staff. Nevertheless, the benefits gained by the individual engineer when he obtains his license far outweigh those given to the company.

Personal development and registration go hand in hand. The company believes that a man's progress is linked with his professional attitude. This is what we look for in an engineer at Parke-Davis: Drive—Determination—Dependability. In short, the ability to get the job done. We believe these qualities are best demonstrated by the type of man who is self-motivated to attain his professional engineer's license.

Believing initial impressions are most important, we wish to give the newcomer a "sense of belonging" to a professional group the first day he joins us at Parke-Davis. While he is still free from duties and assignments, we provide an individually guided plant orientation tour for him extending over a two-week period. During this time he meets his prospective associate engineers, production supervisors, and other members of the Engineering Division with whom he will be in daily contact in the processing of his work. The Engineering Division maintains an organization chart with photographs of the engineers and other key people which enables the newcomer to remember the names of the individuals in the three Engineering Subdivisions. One of the purposes of the orientation program is to insure the newcomer that professional advice and guidance is readily available from the more senior professional engineers. At the conclusion of his orientation period, the engineer writes a report giving his comments and recommendations, which helps us determine the effectiveness of the program and whether it has accomplished primary objectives.

Recent management literature emphasizes that an engineer wants recognition, challenge, and advancement opportunities based solely on merit. We believe we meet this need at Parke-Davis by recognizing outstanding and noteworthy performance. Through periodic committee appraisals and management reviews, we carefully evaluate individual engineering performance on projects and assignments. In responsible charge of a project here means using independent judgment, initiative, establishing and meeting commitments, and controlling job costs.



Parke-Davis Chicago Branch House. Project engineer was Alan Ameel.

Each individual engineer has ample opportunity to offer his contributions. Regardless of assignment, he may demonstrate how his present job can be handled even better than it was by the most successful predecessor.

A selected rotation plan for our engineers prevents them from growing stale on the job. The various engineering assignments offer challenges in design, shop supervision, plant engineering, plant operations, and administration. We are fortunate in being part of a major growth industry which offers a continual challenge to develop new methods, techniques, and manufacturing equip-

ment. Production methods are never static in the pharmaceutical industry.

Our Company provides a well equipped Engineering Library with a full-time library staff to aid engineers in reviewing and searching for all the applicable technical literature. Realizing that college training is only the basic preparation for a career, self-development literature is stressed and reading programs are outlined for the engineers. Through the medium of the Library, arrangements are made to attend special management courses, technical sessions, and meetings of the engineering societies. It is our policy to have the engineer who is selected to attend a meeting or conference report verbally to his associates at one of our regular engineering meetings.

It is Engineering Management's policy to have each man formulate his own self-development program. Individual goals may vary: Some are headed towards technical competence or outstanding performance in a particular field of engineering, others towards general plant engineering operations and supervision, and some towards administration. Regardless of how he sets his sights, the attainment of the professional engineer's license is a definite asset to any one of our engineers.

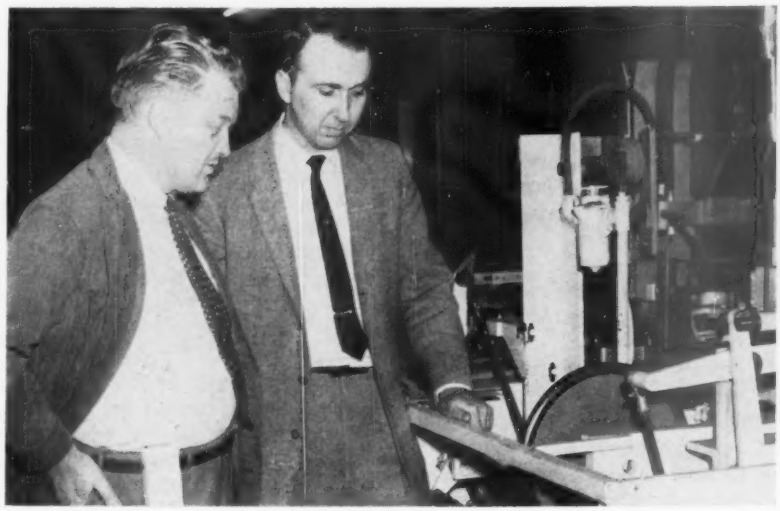
Acting on the premise of Francis Bacon, who said "Reading maketh a full man, conference a ready man, and writing an exact man," communications are stressed at Parke-Davis. We encourage our engineers to write articles for the technical journals and to contribute periodically to our company magazine. They also present programs before management and civic groups. Our engineers comprise over 50 per cent of the membership in our company's Toastmaster's Club. Our plant engineering positions require the engineer to be adept at conducting conferences and meetings.

The mark of an educated man is his ability to express himself clearly and intelligently. It is just as important for an engineer to be able to convey his ideas, his plans, and his proposals to top management in a lucid and understandable style. It is noted that trends in the recent professional engineer's licensing examinations are towards the inclusion of the essay type questions which test and reveal the engineer's grasp of engineering principles. In this part of the examination, the applicant demonstrates his ability to apply his engineering knowledge and training, in brief, his competence as an engineer.

Gradually over the years with its emphasis on professional conduct, the Engineering Division has built up a reputation for dependability and reliability. All major expenditures for facilities, equipment, and maintenance at Parke-Davis require an engineering study, estimate, and recommendation. In addition, the department maintains an enviable record of cost control on engineering projects. Parke-Davis Management looks with confidence upon its Engineering Department to offer full professional services for all of its world-wide plant facilities.

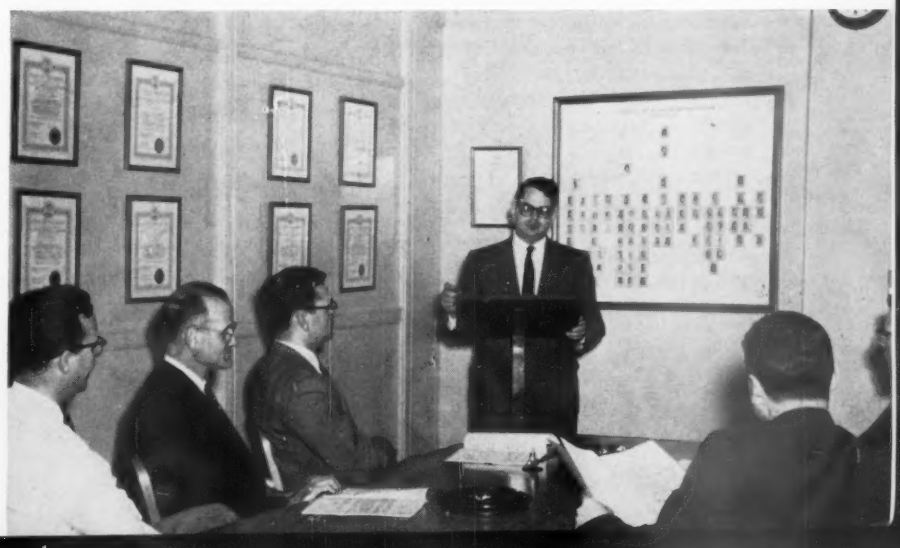
In this professional atmosphere, we believe we have imbued in our engineers pride in their work with its connotation of self-respect, as well as the opportunity to use their professional talents to the fullest extent. Thus, the engineer at Parke-Davis plays an important role on the team which consists of: the scientist—the engineer—the production man. While our work may not be as spectacular as building skyscrapers or missiles, we take

(Continued on page 49)



George Heman, right, reviews plans with Area Shop foreman, John Sliz.

Milt Moore reports on an inspection trip to his associates in engineering.



PR 'Inventory' Outlines Society E

New 12-page Booklet Charts National, State, & Local PR Projects In Detailed Listings of Programs By Format and Objective

Ten years of PR efforts at the national level were summarized at a meeting of NSPE's Public Relations Committee in 1960. This summary listed these major PR projects for the past decade:

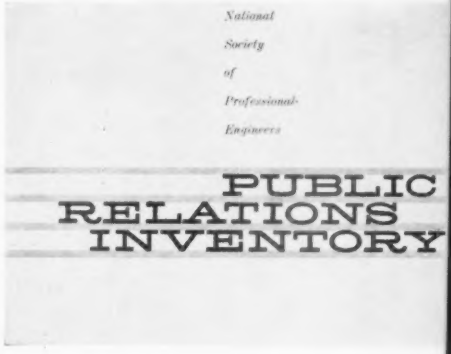
- a fund raising drive of $50,000
- establishment of the Professional Engineers Conference Board For Industry and the consequent series of published Executive Research Survey Reports
- National Engineers' Week observance
- the production and distribution of the film *Building For Professional Growth*
- the development and distribution of the handbook *Public Relations For the Professional Engineering Society*
- the "Project Ambassador" program which sent two engineers on a month-long tour of Latin America
- a program of writing and distributing news releases on all phases of the Society's activities and objectives
- writing of magazine articles for various engineering publications
- publicizing talks given by Society people
- the writing and publishing of numerous booklets and pamphlets
- issuance of a Public Relations Newsletter for local chapters and state society use
- creation and development of displays for chapters and state society use
- writing of articles and news stories for the *American Engineer*
- assisting in the publicity program for the National Society's various meetings

Every activity of the National Society has a public relations impact upon some group, such as students, educators, engineers, engineering organizations, users of engineering services, managers, legislators, or government officials. The PR Committee has long felt that a considerable portion of the National Society membership have little awareness of the over-all scope of the PR activities which are carried out at the national level. At a spring, 1960, meeting of the PR Committee, it was decided that the membership could be aided in becoming more aware of PR activities if an "inventory" of such activities could be prepared which would show the various projects and the PR objectives which were behind the projects.

This decision resulted in the preparation and publication of the *PR Inventory*, now available at no charge from the National Society headquarters in Washington, D.C. This 12-page booklet lists, in chart form, a total of 55 public relations "problems" faced by the National Society. Listed across the page in adjoining columns are the NSPE programs for meeting these problems, the format of the program (whether it is a publication, display, film), and the PR objectives of the programs.

Among the 55 public relations problems listed in the *PR Inventory* are such as:

- How to offer the membership a means for keeping informed in the complex area of national legislation affecting the profession.
- How to develop and distribute factual information concerning professional engineer earnings.
- How to present NSPE's views


National Society of Professional Engineers

PUBLIC RELATIONS INVENTORY

PR INV.
(PR Public

The PR Problem	The NSPE Program
How to provide the local NSPE affiliates with basic information on National Society procedure and operation.	"Chapter Handbook"
How can member interest in NSPE be stimulated at the chapter level?	"Building for Professional Growth"
How to display the NSPE program at chapter and other meetings.	The NSPE Display
How to present the entire NSPE membership with an over-all description of National Society activities during a given year.	NSPE Annual Report
How to bring before the membership a continuing series of articles on various aspects of NSPE policy.	"NSPE Believes"
How to inform the membership about the publications available from the National Society.	Publications Catalog

Above: Front cover of the 12-page, newly-published *Public Relations Inventory* containing an outline, in chart form, of the over-all scope of the National Society's PR activities.

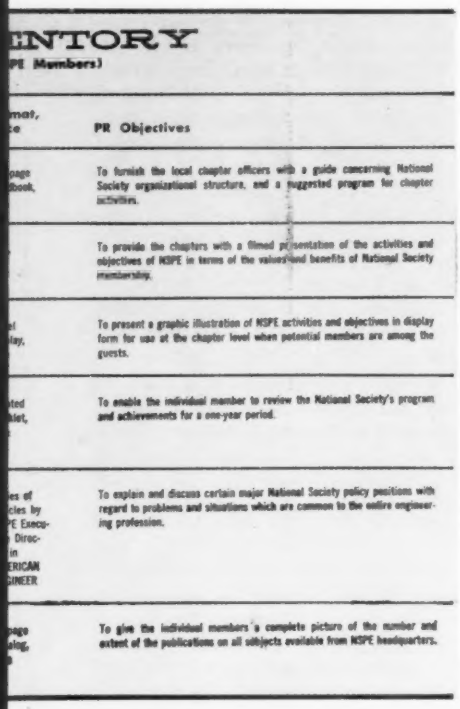
Right: A reproduction of a page from the *Inventory* showing six PR problems relating to NSPE members.

fforts

to government officials at the national level.

- How to distribute factual information concerning engineer-management relations.
- How to inform parents, teachers, guidance counselors, and others about engineering as a career.
- How to inform the public about the implications of unionism for professional engineers.
- How to reach the general public in a nation-wide program calling attention to engineers and engineering achievements.

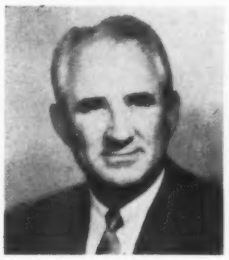
As can be seen by the reproduction of one page of the chart, the *PR Inventory* is broken down into PR activities relating to certain "audiences" or segments of the public which the National Society is interested in reaching. These segments are NSPE members, government officials and legislators, the general public, students, engineering management, and prospective NSPE members. The chart



ENTORY
PE Members)

	PR Objectives
page book,	To furnish the local chapter officers with a guide concerning National Society organizational structure, and a suggested program for chapter activities.
	To provide the chapters with a filmed presentation of the activities and objectives of NSPE in terms of the values and benefits of National Society membership.
f fay,	To present a graphic illustration of NSPE activities and objectives in display form for use at the chapter level when potential members are among the guests.
ted blet,	To enable the individual member to review the National Society's program and achievements for a one-year period.
es of cies by PE Execo- Direc- in ERICAN GINEER	To explain and discuss certain major National Society policy positions with regard to problems and situations which are common to the entire engineering profession.
page alog,	To give the individual members a complete picture of the number and extent of the publications on all subjects available from NSPE headquarters.

An Important PR Message



Mr. Pratt

The newly published *PR Inventory* represents a comprehensive survey of NSPE activities and programs which have a public relations significance for engineering students, NSPE members, engineering management, PE nonmembers, nonregistered engineers, and the general public. It is the hope of the PR Committee that this publication will illustrate, in chart form, something of the magnitude of the PR objectives toward which the National Society has been working.

A copy of the *PR Inventory* should be placed in the hands of the local and state PR committee chairmen for filing in the PR handbook. It can also be used by chapter and state officers and other committee chairmen as a guide for planning programs and special projects which can be centered around material available from the National Society. The PR Committee believes that a careful study of this reference chart will give an NSPE member a broad view of National Society endeavors in the general field of public relations.

John L. Pratt, P.E., Chairman
Public Relations Committee

inventory thus provides an immediate reference to the segment of the public concerned in any PR project, the program NSPE has developed for that particular project, and the over-all objectives of the program.

The PR objectives of the NSPE programs listed for prospective NSPE members are described as:

- To provide the chapters with a filmed presentation of the activities and objectives of NSPE in terms of the values and benefits of National Society membership for showing at membership meetings and other conferences and special programs.
- To introduce the registered engineer and the engineer-in-training to a wide range of NSPE interests including such things as the Society's publications, legislative efforts, salary studies, functional sections, professional development programs, public relations projects, and many others.
- To present, in printed form, a discussion of the general philosophy of registration, the legal basis for registration, engineer-in-training certification, and details on how to register.
- To present a graphic illustration of NSPE activities and objectives in display form for use at the chapter level when potential members are among the guests.
- To call attention to the activities of NSPE membership on the part of EIT's and newly registered PE's through an introductory membership plan with waiver of dues at the chapter, state, and national levels.

Copies of the *PR Inventory* are being distributed to all local chapters and state societies with the September issue of the PR News Letter. One copy should be placed in the PR file section of the PR handbook. The PR Committee hopes that additional copies will be ordered by chapter officers for discussion and distribution at meetings.—End.

What's the Matter with Engineering Meetings?

By

EDGAR J. (KIT) KARSTEN, P. E.

Chief Engineer, Kansas Gas & Electric Co.

There has been much recent publicity criticizing the large number of engineering and scientific meetings. One item says that these meetings are too frequent, cost too much money, are riddled with too much duplication and in some cases are eating seriously into working time of employees.

I agree there are too many expensive, duplicating and time-consuming meetings. If that is so, what's wrong? Let's analyze it.

The basic time-consuming trouble with meetings lies partly in poorly prepared agenda; to a greater extent in wordy, biographical introductions of speakers; and to a large extent in presentations which are unintelligible, lengthy, and quite tiring. I find them disgustingly rude and boring.

Is it a difficult task to treat listeners with greater respect? No. All that is necessary to make meetings lively and interesting is to prepare the presentations in deference to the audience; with concern about the hearer's interest, understanding, and intellect; with an exercise of the same courtesy as is prescribed in the etiquette books.

This takes much more time than is usually given to preparation, but it is worth it. When practiced, it leaves the audience wanting more instead of wondering "why he didn't stop back there where he had a chance, and quit while he was ahead." Such preparation cuts down meeting time. From an observation of the many, many meetings I have attended over the past 30 years, I am sure half the time consumed would have been sufficient and could have given the listeners more useful information. This practice, if generally applied, would be a real money saver. Meetings of half the length, or half as many meetings would have real dough. The questions raised after well-presented subject matter will be fewer. Also, the treatment of the poor, helpless critters corralled as an audience will be humane.

The worst of the bad practices are the poorly written and poorly presented papers. They are written entirely in the third person. This is tradition. There are those who hold that since scientific findings deal with the inanimate, the writer must leave himself out of all discussion. To be consistent with the objectivity embodied in this notion, he must write third person. But this is almost impossible. It would be possible by automation, but who would find such literature interesting? As it is done, the author prepares his subject matter, loading it with language with which he is entirely unfamiliar. When he presents his paper, he first hands out copies and then starts reading this "foreign language" with but little success. You pick up your copy and try to find what it is all about. But just when you are about to grasp a smattering of meaning, the lights go out for slides. Thus you are left in the dark while the author stumbles onward reading from a lectern lamp.

Some four years ago, when I was president of the Wichita Professional Engineering Society, I spent a lot of time discussing this problem with the board. The result was a big improvement in the local presentations.

There is an annual engineering conference of the Missouri Valley Electric Association in our area. Somebody from my department has presented a paper each year for the past six years. The papers are not long. The oral presentation is given in a highlighted summarized form. The result is that I was recently asked by someone from the Kansas Engineering Society to prepare material telling how we do this. When you go to this additional painstaking effort, you get good results. As an added premium, you learn more about your subject.

Since I have been in the electric power business, engineers have improved the efficiency of power plants by a considerable amount. They were able to increase the efficiency of transformers only slightly

(Continued on page 49)

About the Author . . .

Mr. Karsten

Funeral services were held in Wichita, Kansas, recently for Edgar J. (Kit) Karsten, 60, chief engineer of Kansas Gas and Electric Company the past 11 years, who died after suffering a heart attack. One of Mr. Karsten's last services to the engineering profession was the preparation of this article for the AMERICAN ENGINEER.

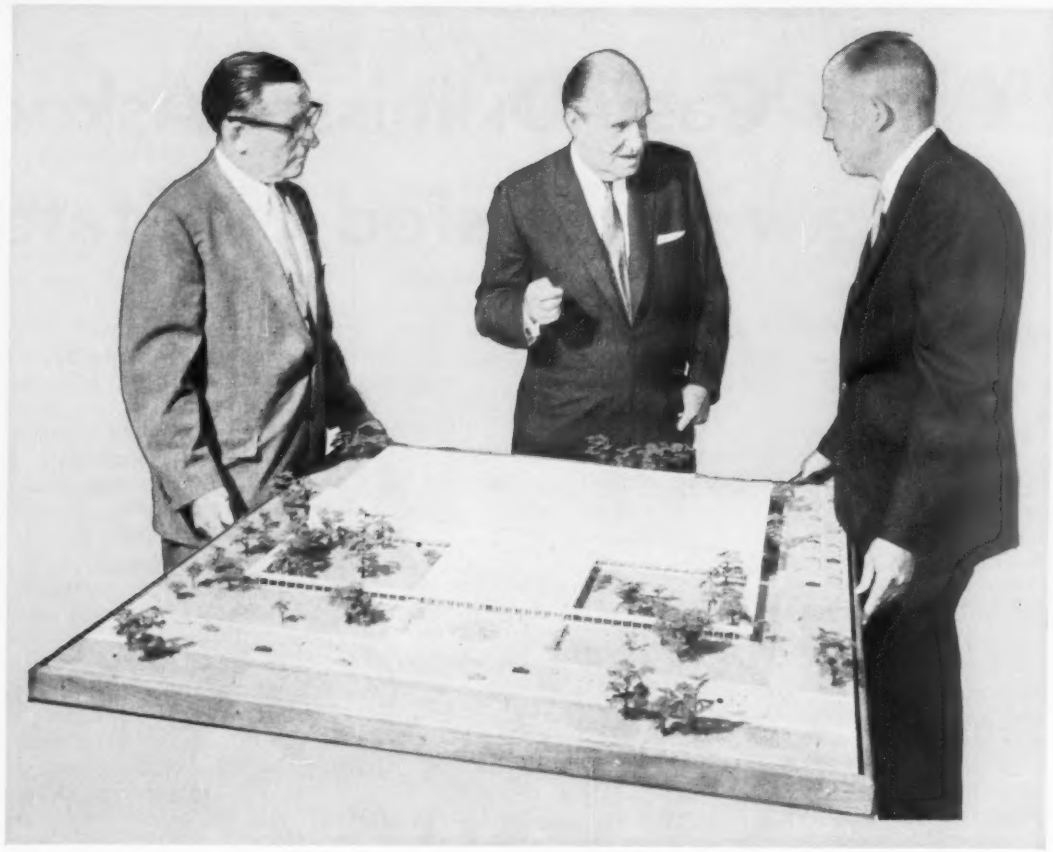
Mr. Karsten was born March 28, 1900, in Marengo, Iowa. He attended the School of Engineering, Milwaukee, Wisc., and earned a degree in engineering from the State University of Iowa in 1925.

After college he started work for The United Light and Power Engineering and Construction Company, later The United Light and Railways Service Company. He was in Davenport, Iowa, prior to coming to Wichita and joining KG&E as chief engineer July 1, 1949.

Karsten was active in civic and professional organizations. He was a member of the Wichita Downtown Lions Club, the Reformation Lutheran Church, Wichita Society of Professional Engineers of which he was once president, AIEE, the Advisory Council for the School of Engineering and Architecture, Kansas State University, and Electric Equipment Committee, Edison Electric Institute.

Survivors include his wife, Annette, a daughter and son.

Professional Profiles



Joseph A. Rosenthal, P.E. (left), Edward D. Stone, architect (center), and Louis Brennesholtz, vice-president in charge of production for Yardley of London, Inc., discuss the model of the new $2.5 million Yardley plant, a current Engineers, Inc., project.

Joseph A. Rosenthal, P.E., started 17 years ago with a nucleus staff of experts in the various branches of engineering to found Engineers, Incorporated. Today he is surrounded by a well organized corporation which provides its clients with a building design complete through the construction phases.

Mr. Rosenthal, now 53, is a native of Asbury Park, N.J., and was graduated from Stevens Institute of Technology, Hoboken, N.J., in 1929 with a degree in mechanical engineering. Before going on his own to found Engineers, Inc., in 1944, he worked 15 years for United Color & Pigment Company, progressing from liaison engineer to chief engineer and plant manager.

One reason for the success of his organization is the keen interest he takes in selecting and working with qualified personnel. He insists that all group leaders and principals be licensed professional engineers and that project managers be licensed professional engineers or registered architects. His employees are given financial assistance toward engineering education and professional registration.

Prominent among the thorough projects completed by Engineers, Inc., in recent years is the master planning and complete design of offices and three plants for Chatham Electronics Corporation which covered a 21-acre-site and took ten years to complete.

A current project involves the new plant for Yardley or London, Inc., at Totowa, N.J. The plant, which is to be located on a campus-like wooded tract, is a radical departure from standard industrial planning. It is to be completely air-conditioned and will include a 5,000 ft. lounge area, lunchroom and medical facilities, and outside parking for 250 automobiles.

Engineers, Inc., has received Excellance of Design awards for the plants it designed for Adams Carbide Corp.; The Daven Co., a division of General Mills; the Garden State Mower Co., a division of U.S. Hammered Piston Ring Co.; the Nopco Chemical Co., and Westinghouse Electric Corp.

But watching the company progress has not prevented Mr. Rosenthal from being active outside the office. He is a past president of the Essex County SPE, founder and twice past chairman of the Consulting Engineers Functional Section of the NJSPE, and alternate national director of NSPE.

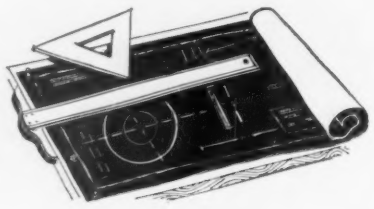
A Staff Report*

McCamy Case Dismissal Asked; New Law Suggested by State

NOW in the eleventh month of deliberation on their first case, members of the New Jersey Special Hearing Board set up to screen architect-engineer disputes before they get into court are finding that the absence of definitive terms in the New Jersey registration laws makes their job like looking for buried treasure with no map.

Charged with the responsibility of determining when a court trial is warranted in an interprofessional jurisdiction dispute, the five-man board is studying the merits of a case in which William J. McCamy, a licensed professional engineer specializing in civil engineering, has been accused of practicing architecture in violation of the state registration law. McCamy, who never claimed to be anything but a licensed professional engineer, designed a private residence and a country club golf house, both of which, say the New Jersey Society of Architects and the State Board of Architects, can only be done legally by licensed architects. In fact, it was brought out in the record of the case that the architects claim the exclusive right to design all types of buildings and structures except power houses, dams, bridges, and sewage treatment works.

The special hearing board, set up in a 1952 law is composed of one representative from each profession's state society, one from each of the two state registration boards, and the state attorney general or his deputy. According to the law, if the hearing board finds that there are not sufficient facts to warrant a judicial proceeding against a professional practitioner, then no action may be instituted. On the other hand, if the hearing board decides that sufficient evidence of a violation exists, penalty charges may be prosecuted and the person charged is then given a further opportunity to defend his conduct in court.



This all sounded very sensible in 1952, but the hearing board is now discovering that when the legislature passed the architectural registration laws, they neglected to include a definition of "architecture," "practice of architecture" or "engineering project," and courts generally do not supply such definitions, as such is a legislative function. Another issue in these proceedings is the fact that the New Jersey statutes do not specifically furnish standards to enable an administrative agency to supply such definitions.

In the McCamy case, this means that the hearing board is put in the awkward position of supplying definitions and standards before it could reasonably determine whether McCamy has violated the law.

Capitalizing upon this apparent weakness in the statutes, Attorney Arthur W. Lewis, retained by the New Jersey Society of Professional Engineers, has filed a 23-point Motion for Dismissal of the case. One of the grounds is that the absence of a statutory delineation between the two professions would make a guilty verdict unconstitutional. How, asks Lewis, can a man be guilty of violating a penalty statute when the offense charged is not subject to a clear, understandable, coherent and definite meaning?

In the presentation of the architect's case, many definitions of "architecture" were supplied from various sources, but Lewis points out that no two are alike and that even the several expert witnesses brought forward by the architects could not supply consistent definitions.

Furthermore, states the engineers' lawyer, the complaints have failed to prove their charges that the defendant violated provisions of the architects' registration law or that McCamy was not within his rights as a professional engineer under the exception to the architects' law and under the provisions of the New Jersey professional engineers' act. The key section of the architects' statute provides:

"Any person who shall pursue the practice of architecture in this State, or shall engage in this State in the business of preparing plans, specifications and preliminary data for the erection or alteration of any building, except buildings designed by licensed professional engineers, incidental or supplemental to engineering projects . . . shall be liable to a penalty. . . ."

LEWIS' motion contends that the architects have not only failed to prove that what McCamy did was not "incidental" to his work as an

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*** This late, on-the-spot report was written especially for the *American Engineer* by Gayle N. Wright, NSPE Staff Assistant.**

engineer, but have also not produced evidence that he prepared any specifications or preliminary data usually done by architects. The wording of the law, reasons Lewis, says that no violation exists unless a person prepares plans, specifications, *and* preliminary data. It is not enough to show that he prepared plans, for the use of the word "and" shows that the legislature intended that all three must be proven, and Lewis maintains that an examination of the facts set out in the transcript of the record will not support the charges against McCamy.

Since Lewis has based his Motion for Dismissal upon the architects' testimony and record, a denial of the motion would merely send the two factions back to the trenches for another long siege as Lewis launches into the defense of the case, or, as Lewis has indicated, he may appeal the board's decision on the motion to the Appellate Division of the Superior Court for its determination on the motion before proceeding with what might well be a long protracted defense record. The issues in this case go way beyond McCamy, the individual engineer—"the guinea pig in a test case;" they relate to the "exclusive rights" contention by the architects which Lewis maintains is untenable historically, competitively, and ethically, is contrary to public policy, and is unconstitutional. In fact, argues Lewis, if the architect's contentions were carried to their logical conclusion, virtually every practicing civil engineer in New Jersey would be violating the Architects' Act.

No matter how the hearing board decides the case, either side may take an appeal on the merits to the Superior Court; and if ultimately penalty proceedings should be instituted against McCamy, he still has another opportunity to defend with the usual judicial rights of appeal. Obviously this matter can be in litigation for a long, long time.

In an effort to resolve a dispute which could drag on for months or even years, Deputy Attorney General Andrew A. Salvest introduced a possible solution of his

(Continued on page 46)

For Personal Use . . .

ENGINEER'S RECORD BOOK

How many times have you wished that you had kept certain vital statistics — *and in one place?* Through the newly developed Engineer's Record Book this can now be done! Engineering students and EIT's will find this attractive Record Book invaluable in organizing the necessary data when applying for registration as a professional engineer.

Among the many advantages of this Record Book are:

- **All data is in *one* place.**
- **A convenient and handy reference source.**
- **Format allows easy expansion for additional records.**
- **Invaluable in preparing job applications and resumes.**

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A PHILOSOPHY OF ARCHITECTURE

Design is one of the causes for building. Shown: Immaculate Conception Church, Marrero, La.

Materials is one of the causes for building. Shown: Commonwealth Edison's Will County, Ill., plant.

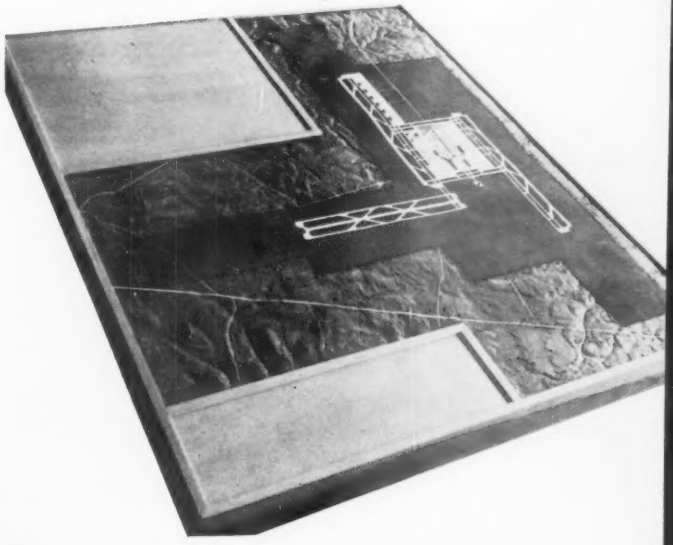
THE search for an objective criteria by which to judge architectural aesthetics has been largely unsuccessful, because art is considered subjective. The author considers the objective realities of art and suggests that aesthetic truths be sought with the same vigor now applied to research in other fields. Part of the responsibility for aesthetic research is delegated to manufacturers. An elementary approach to such research is suggested. The paper attempts to define the relationship of men in the construction industry to each other and to the cause in which they are engaged. Existing philosophies of architectural cause are discussed in view of the principles governing those causes.

The Cause of Architecture

A simple question is often the most difficult to answer. For example "What is a building?" In such simplicity is found the causal philosophy of Aristotle, who believed that there were four and only four causes for the existence of anything. Change according to Aristotle can occur only if (1) there is design for change, (2) there is material which can be changed, (3) there is action which effects the change, and (4) there is a purpose for the change. On this basis buildings exist because man plans to erect suitable materials for the satisfaction of his need for shelter. Thus, we have the four accepted causes for buildings, i.e. *design, materials, construction* and *function.*

Although these four causes tell us how a building came to be, they do not fully describe it. Again Aristotle comes to the rescue with ten categories of description which can be used to describe fully anything. These categories, philosophically called "predicaments," are used daily by journalists to give us the who, what, when and where of the news. Philosophers, however, are understandably somewhat more thorough in their descriptions than the press. In addition to "who" or "what," "when" and "where," Aristotle listed "quality" (how much), quality (what sort of thing), relation (to what or whom), action (doing what), reaction (what is happening to it), posture (in what attitude; stationary, moving etc.),

By
CLAYTON T. GRIMM, P. E.
Manager, Architectural and Engineering Dept.
The Zonelite Company, Chicago, Ill.



Construction is one of the causes for building. Shown: Model of Dulles Airport, Chantilly, Va.

Function is one of the causes for building. Shown: Yankee Stadium which seats 75,000.

and finally environment (how surrounded).

For example when Aristotle's ten "predicaments" are applied to buildings we find that each is *material*, which has *size* and *shape*, which *protects man* from *weather* at or for some *time* in some *location*, which has an *environment* to which the building has an *attitude*. Any building, then, can be fully described if each of the ten "predicaments" is known. This brings us to another simple question, "What is knowledge?"

Architectural Knowledge

Truth is, simply, correspondence to reality. Knowledge is a clear perception of truth. Classically this perception is obtained by (1) the senses, (2) self-evident definition, (3) deduction, (4) induction, and (5) the authority of creditable witness. For example, with regard to materials we can know (1) that the brick has weight, (2) that it cannot be both heavier and lighter in weight than another brick, (3) that the weight of two bricks is equal to the sum of the weights of each brick, (4) that all bricks have weight, and (5) that brick is also made in China.

The knowledge thus gained, regarding the ten "predicaments" of building previously cited, is systematized into disciplines from which principles for the art and science of building evolve. A comparison of these "predicaments" with the related field of building knowledge illustrates the complexity of the principles. (See Table 1.)

Table 1

Predicament	*Field of Knowledge*
material	chemistry
size	mathematics
form	art
man	psychology
protection	physiology
weather	climatology
time	history
location	geography
environment	landscape
posture	physics

However diverse these fields of knowledge may be, when applied to shelter, they are collectively known as the *art* and *science* of building. But man cannot devote all of his labor to the satisfaction of the need for shelter, since obviously he has others, including de-

sires which he equates to needs. Because he cannot completely satisfy all, he has need to allocate his efforts. How much is he willing to sacrifice of one material need in order to satisfy another? Obviously he must allocate his efforts. Since his material needs are many and varied, he equates all of them to one common denominator, which he calls money. The discipline involving principles for the allocation of money is *economics.*

Architectural Practice

The application of principle to cause is the practice of a profession. The practice of architecture is the application of *art, science* and *economics* to the *design, materials, construction* and *function* of buildings. The applicability of the engineering and economics principles to these causes has been well documented. Aesthetics, however, has not been so thoroughly investigated.

Architecture is the application of economics. Shown: Kaiser's California Center.

Architecture is the application of science. Shown: The UN with 5,400 windows.

The principles of the three distinguishable disciplines, aesthetics, engineering and economics, are used in *design* to form an image of each shelter element. Engineering determines the required section modulus of a beam. Economy dictates the selection of the most economical shape having the required modulus. Aesthetics may modify the shape slightly, because engineering and economics only approximate truth. Aesthetics may also add the spice of color, texture and pattern. There can be no real conflict here. Truths do not contradict each other. It is the well reasoned process of arriving at truth, each of the three principles contributing to an architectural solution, none always dominating.

With regard to *materials,* the second cause of buildings, it is evident that the shape, color and texture of an exposed material give it aesthetic qualities. If the material is not exposed to view, it nonetheless contributes to aesthetics by its physical displacement, giving form to some other object and ultimately to the building. Since it cannot give what it does not have, the material must have an aesthetic quality.

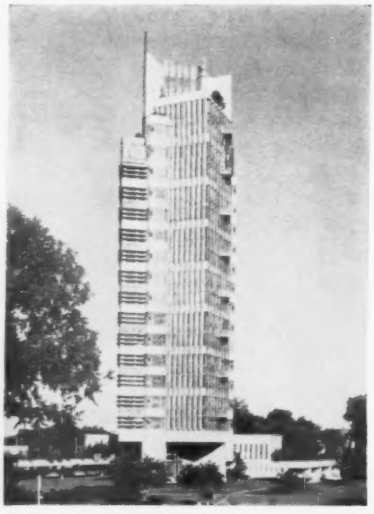
The third cause of building is *construction,* which requires skill. It is generally recognized that skillful action is beautiful, e.g., the stroke of a good golfer. Bricklaying, too, is conceded to be a manual art. Physical dexterity can render an object beautiful. Since it cannot give what it does not have, the action must have an aesthetic quality. Plato thought that the builder was a greater artist than the painter, who only imitated the builder's art.

Aesthetics also affects *function,* the fourth cause of buildings. Function satisfies a need and, therefore, "gives pleasure to the senses or spirit," which is the definition of beauty. There is beauty in needful purpose.

Philosophy of Architecture

It is interesting to note the schools of architectural philosophy which the four causes of building have generated. *Idealism* holds that ideas are the objects to be pursued in action. *Materialism* holds that ultimate reality is constituted in matter which is possessed primarily of physical properties. *Functionalism* holds that form and structure are established on the basis of the most economical satisfaction of need. And it would appear that there are some who believe in *activity* as the sole purpose of being. These are the wheel spinners.

These philosophies of and by themselves are in error, because they have confused cause with principle, have made means an end in itself. The error of functionalism in architecture deserves special attention, because it has caused much confusion. In one sense it has



Architecture is the application of art. Shown: Frank Lloyd Wright's Price Tower.

subjugated the principle of art to the principles of cost and science. It pits aesthetics against economy and engineering. It subjugates idealism to materialism, saying less is more. It proclaims that form follows function or that function justifies form. It upholds the principle that the end justifies the means. Logically its conclusion is erroneous, because its premise is erroneous. The end does not justify the means, the proof for which is not required here. Function (purpose) is "a" cause of building, not "the" cause. The four causes have a chronology in which function follows form. The idea of shelter exists before the fact. But functionalism persists in its own destruction by giving more and more of less and less and will ultimately reach its own just end.

Since in any given building the three principles of aesthetics, engineering and economics may be well applied or not, there exists in the simplest terms eight possibilities, $(n^2 - 1) = (3^2 - 1) = 8$, only one of which can contribute to good architecture, i.e., when each is well applied. See Fig. 1. The magnitude of architecture is, however, greater than the sum of its parts. Buildings become good architecture only when the three principles of engineering, aesthetics and economics are each well applied and properly weighed in view of their relative importance to the problem at hand. Since the requirements of each owner differ, and differ with any given owner from time to time, there can be no stereotype architectural solutions. It will be noted in Fig. 2 that a general philosophy may be stated for the integration of the three principles of economics, engineering and aethetics. For simplicity, only two scales have been used to illustrate this integration. In fact, there are at least as many scales of relative importance as there are good examples of architecture.

The proper design philosophy is the criteria which weighs the three architectural principles in view of their relative importance to the problem at hand. It is philosophy which permits value judgment on principles. It is philosophy which makes a magnitude greater than the sum of its parts. The true philosopher does not overemphasize aesthetics, yet is not ignorant of beauty, and is not motivated only by money. The true professionals are the true philosophers. They are balanced in their principles, knowing for example when an owner can afford to invite the outdoors in and when he cannot. The true philosopher knows that not all buildings should be windowless nor should all walls be windows. Each person who represents an architectural cause, the architect, manufacturer, contractor, and client, must be a true philosopher, applying balanced principles to his own cause and understanding the philosophy of the correlative causes. When all understand that each is

(Continued on page 50)

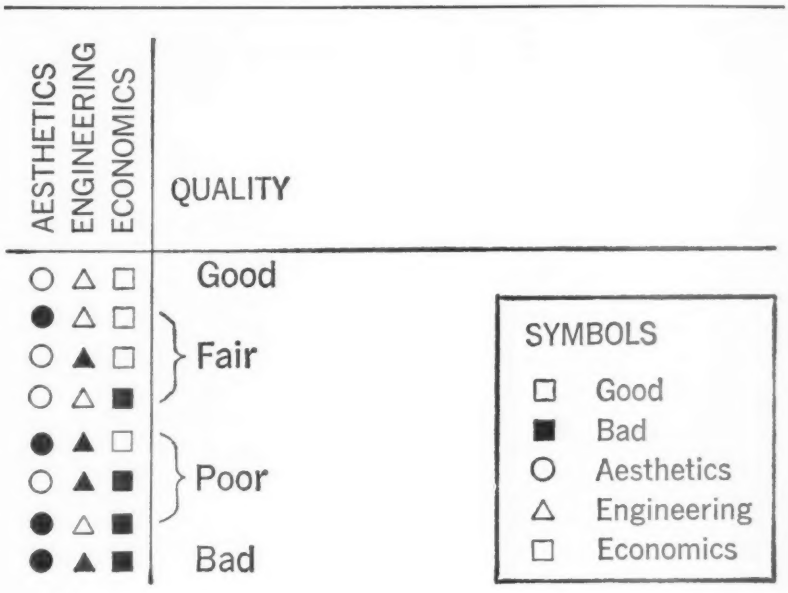


Fig. One

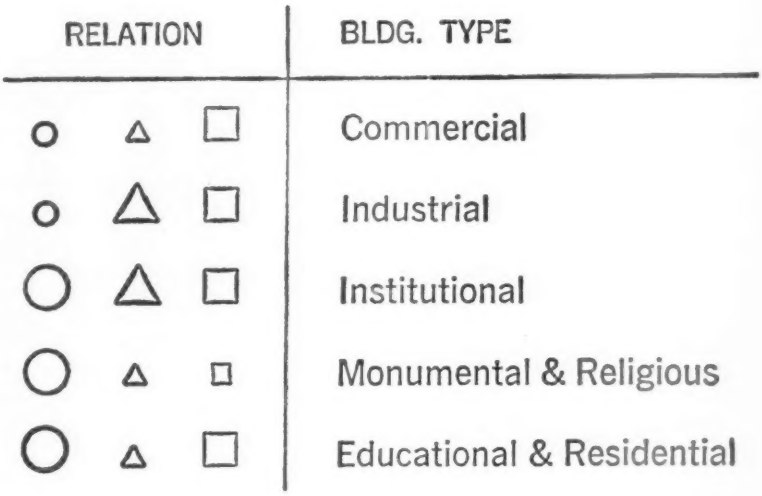
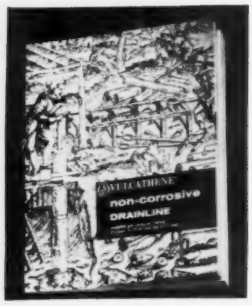


Fig. Two

New Literature

VULCATHENE — American Vulcathene Division of The Nalge Company Inc., announces a new 20-page engineering and parts catalog showing "Vulcathene" as the one complete, permanent acid and corrosion resistant waste and drainage system of plastic plumbing equipment . . . covering



sinks, traps, pipe and fittings, adapters and other products. It includes a section on "Polyfusion" method of joining "Vulcathene" pipe and fittings. The catalog also gives technical and dimensional information, installation notes, tables of thread sizes and chemical resistance information.

(Circle 15 in Readers' Service Dept.)

STEAM—An outline of the Polyphase services for boiler water control and steam line corrosion inhibition is given in the Polyphase brochure entitled "Steam for Less Money." The Polyphase plan for producing "Steam for Less Money" is a custom formulated service which covers a complete water survey with water analyses, chemical reports and specific recommendations for each water problem. This is followed by continuous laboratory testing and field service on each installation to insure progressive water treatment efficiency and to correct for any changes in operating plant conditions, according to the brochure. The Polyphase plan has for its end results, in boiler water conditions, increased evaporation, cleaner steam, reduction in total fuel fired, decreased boiler outage periods and less maintenance, it is claimed.

(Circle 16 in Readers' Service Dept.)

MAGNIFIERS—Bausch & Lomb has revised its descriptive catalog which covers a complete line of readers and magnifiers. New items have been added to the 14-page illustrated booklet, which lists over sixty-five individual models (powers from 2x to 20x). Specifications and prices are included for an extensive selection of round and rectangular readers, folding pocket magnifiers, watchmaker's loupes, surface comparators, enlarging focusing magnifiers, etc. Helpful tips on correct working distance, how to determine magnifying power, field of view factors and the proper magnifier for individual job requirements are discussed in detail.

(Circle 17 in Readers' Service Dept.)

CRUSHING—The Pennsylvania Crusher Division of Bath Iron Works Corporation announces a new edition of their "Handbook of Crushing." The 40-page book has been prepared to provide a better understanding of the entire subject of mechanical size reduction. The various reduction methods—impact, attrition, shear and pressure—are described and discussed, as are the many kinds of crushing equipment. Closed circuit crushing systems are covered, as are the various factors to be considered in selecting crushing methods for particular applications and materials. The book is amply illustrated with diagrams and charts for easy understanding.

(Circle 18 in Readers' Service Dept.)

CARBIDES—A new booklet on Carmet Cemented Carbides designed for wear resistance now is being distributed by Carmet Division of Allegheny Ludlum Steel Corporation. The new 12-page booklet gives details on design techniques, various sizes, properties, hardness, abrasion resistance and other information to help designers in the selection and application of the proper Carmet grade and in the design of wear parts and die components that will make the best use of Carmet's properties. Packed into the booklet are charts, graphs, case histories, and tables of information needed for intelligent selection and application of Carmet Cemented Carbides.

(Circle 19 in Readers' Service Dept.)

RUBBER PROTECTION—Literature describing the new U.S. "Everseal" silcone rubber protection against adverse environments for windings of form-wound motors, 150 h.p. and up, is now available from U.S. Electrical Motors Inc. The new literature supplements previously available litera-

New literature on "Everseal" windings protection offered by U.S. MOTORS

ture on U.S. Motors' other method of "Everseal" protection — encapsulation in random-wound motors up to 125 h.p. The U.S. "Everseal" literature provides details about how the new materials and application processes protect the windings, accelerated extreme environmental tests, and engineering data.

(Circle 20 in Readers' Service Dept.)

SOUND CONTROL—Increasing efficiency and productivity with "Sound Control" is now illustrated in a 12-page catalog that has been published by the Allied Witan Company. The catalog illustrates typical sound control applications with illustrated graphs showing reduction of noise in decibels, also reduction of noise distinguished by the human ear. There are charts showing flow rates and operating specifications, photographs and explanations on how "Sound Control" by relatively on land, sea and air is obtained with a new silencer. "Sound Control" describes typical applications of the new silencers and diffusers on guidance ground equipment, aircraft components, marine components and air motors; along with industrial equipment as welding, foundry, presses, tools and assembly.

(Circle 21 in Readers' Service Dept.)

SCAVENGING—The use of condensate scavenging systems in high-pressure power plants is the subject of two new items of literature available from Graver Water Conditioning Company, a division of Union Tank Car Company. Bulletin WC-128, entitled "High-Rate Condensate Scavenging for High-Pressure Central Stations," is a thorough examination of the use of condensate scavenging equipment. Among the topics considered in this 12-page bulletin are the advantages of the process, some of which are increased thermal efficiency, faster start-ups, reduced maintenance costs and makeup requirements, and freedom from forced outages and condensed weepage; equipment for scavenging, including condensate filters and mixed-bed demineralizers, and analytical procedures, specifically the new Graver Automatic Tape Analyzer. Technical Reprint T-181, "What Condensate Scavenging Will Do at Little Gypsy Station," discusses claimed economies and increased efficiency which will result from the use of Graver condensate scavenging equipment at this power plant. The article is illustrated.

(Circle 22 in Readers' Service Dept.)

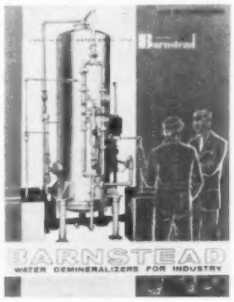
SILICONES—Now available: "How Silicones Work for the CPI." This new manual, said to be the first and only description of silicones for the chemical process industries, cites how various forms of silicones help design, process and maintenance engineers expand capacity, cut costs, lower maintenance, reduce downtime, increase reliability, and improve job conditions. Compiled, edited and published by Dow Corning for engineers and chemists in all phases of the chemical and petrochemical industries, this concise, comprehensive, highly-illustrated booklet points up numerous different ways these versatile engineering materials, silicones, are serving the industry today. Included is information about many silicones—from antifoamers to foamers, from adhesives to abhesives, from paints to creams, from water repellents to dust filters. The advantages of silicone electrical insulating materials and systems in motors, transformers and generators are also briefly described.

(Circle 23 in Readers' Service Dept.)

GEARS—Publication of a 246-page gear and speed reducer catalog has been announced by the Ohio Gear Company. The fully illustrated book contains complete information on sizes, ratings and specifications of the company's complete line of gears and speed reducers. Also contained are easy-to-understand engineering data on the proper selection of gears and reducers to meet specific job requirements. Products covered include: 14½° and 20° pressure angle spur gears, bevel gears, mitre gears, worm and worm gears, spiral bevel gears, racks and sprockets. An entire section is devoted to the new HI-LINE series of fin and fan cooled speed reducers. More than a hundred other varieties ranging in capacity from small fractional to twenty-five horsepower are also covered. The catalog is specially indexed to permit fast, convenient location of specific products and is spiral bound to lay flat.

(Circle 24 in Readers' Service Dept.)

DEMINERALIZERS—A 36-page catalog features the complete line of Barnstead mixed-bed, two-bed, and four-bed demineralizers. A special section is devoted to Barnstead "train"



equipment which produces ultra pure water of 18,000,000 ohms resistance at 25°C. The equipment also removes organics, inorganics, bacteria, gases, and submicroscopic particles down to 0.45 micron. Also described are Barnstead tin-lined piping, fittings and faucets, and purity meters, storage tanks, sand and carbon filters, submicron filters, and other auxiliary equipment. Case histories of Barnstead "specials" are also described and illustrated. Catalog #160 is profusely illustrated with charts, specification drawings, and actual on-job installation photos.

(Circle 25 in Readers' Service Dept.)

FACILITIES—A 16-page, fully illustrated facilities brochure has been published by the Technical Products Division of Waste King Corporation. Boyd T. Marshall, vice president and general manager, said the comprehensive brochure completely details the division's capabilities in design and manufacture of products for military, industrial, commercial, and domestic use. Among products manufactured by the division, and shown in the brochure, are air data probes, hose reel gear drives, automatic aircraft transmissions, electronic packages, flight data recorders, marine equipment, gyro stabilizers, rotating joint assemblies, hydraulic temperature compensators, and heat exchangers.

(Circle 26 in Readers' Service Dept.)

CASTING—Designers, engineers, and metallurgists will find a new 56-page brochure describing the Shaw Process precision casting technique of compelling interest. Published by Shaw Process Development Corporation, the brochure is entitled, "The Shaw Process—Precision Ceramic Casting in the Foundry and Toolmaking Industries." The process is a method for producing large metallic products with higher strength and closer dimensional tolerances than previously available with any other foundry process, it is claimed. The brochure contains both simplified diagrams and actual photographs of the process operations, as well as a listing of the characteristics of Shaw molds and cores. Hundreds of industrial applications are illustrated.

(Circle 27 in Readers' Service Dept.)

COUPLINGS—A 16-page catalog describing a basic line of its fluid, self-sealing, quick disconnect couplings has been issued by Wiggins Connectors. The catalog covers seven basic series of Wiggins' "Inst-O-Matic" line of connectors, and the particular applications of each series. Advantages of the connectors are described as minimum pressure drop, positive, reliable disconnecting and connecting, light weight, and broad range size and materials. A special section contains a table of condensed seal recommendations for fluids such as: aircraft fuels, exotic fuels, ethylene oxide, ammonia, nitrogen, coolents. Pressure drop curves are also illustrated.

(Circle 28 in Readers' Service Dept.)

These listings are informational only and are not an endorsement of the products, nor of the manufacturer's claims. To receive any of the new literature described in these columns, merely circle the item number in the Readers' Service Dept. and mail to AMERICAN ENGINEER.

Final Plans Set For NSPE Denver Meeting, Oct. 18-21

- Reclamation Head Dominy to Speak
- Full Professional Program Featured

Plans have been completed for the Fall meeting of the National Society of Professional Engineers in Denver, October 18-21, with the Professional Engineers of Colorado, The Metropolitan Chapter of the PEC and the Colorado Springs Chapter eagerly awaiting the arrival of NSPE members and officials from throughout the nation.

Denver and Colorado officials will join with engineers in welcoming participants of the meeting to the Mile High City and to the Pikes Peak area.

A PEC committee, under the leadership of PEC President Vernon Konkel and Chairman Sam Hawkins, has been working for more than a year in lining up a meeting evenly balanced between serious business and fun sessions.

Featured speaker for the meeting will be Floyd E. Dominy, U. S. Commissioner of Reclamation. Dominy's visit to the Denver area will be noted with the formation and first meeting of a functional section for engineers in government.

The Colorado committee is urging those attending the meetings to "bring the wife!" There will be a top notch Ladies Luncheon with Jack Foster, noted editor of the Scripps-Howard *Rocky Mountain News,* scheduled to deliver an address on Colorado history and lore. The ladies will also have a hospitality suite, and there will be a dinner dance in the ballroom of the plush Hilton Hotel.

On Friday, the last formal day of the meeting, all those attending will board buses at the Denver Hilton Hotel, traveling to the Pikes Peak area with a box lunch enroute.

In Colorado Springs, there will be a briefing at the top-secret North American Air Defense Command Headquarters, a tour of the Air Force Academy, a cocktail party and a dinner at the Air Force Academy Officers Club.

The Friday evening festivities will include a program of entertainment and a presentation by the Air Force Academy.

Here's the Program:

TUESDAY, OCTOBER 18

9:00 a.m.-5:00 p.m.—Executive Committee Meeting

WEDNESDAY, OCTOBER 19

9:00 a.m.-5:00 p.m.—Executive Committee Meeting
1:00 p.m.-8:00 p.m.—Registration
1:15 p.m.-8:00 p.m.—Ladies Hospitality Room Open
7:00 p.m.—Opening Dinner
Speaker: Noah E. Hull, P.E. NSPE President, "The State of the Society"
Following Dinner—Formal Opening of Fall Professional Meeting
Roll Call of Members of the Board
Reading of Minutes of Previous Meeting
Reading of Communications
Report of Officers
Executive Director
Treasurer
Report of Executive Committee

THURSDAY, OCTOBER 20

8:00 a.m.-5:00 p.m.—Registration
9:00 a.m.—Ladies Hospitality Room Open
9:00 a.m.—Professional Meeting Continues

PROFESSIONAL DEVELOPMENT GROUP

Vice President Elliott, presiding
NSPE Endorsement of Revised Model Law Adopted by NCSBEE
Robert Williamson, P.E., Chairman, Registration Committee
NSPE Expanded Scholarship Program
Leland Hobson, P.E., Chairman, Scholarship Committee
Plans for Young Engineers' Month
Waldo Wegner, P.E., Chairman, Young Engineers Committee
Progress Report on the Broadened Student Contact Program
J. Neils Thompson, P.E., Chairman, Student Professional Development Committee

PROFESSIONAL EMPLOYMENT GROUP

Vice President Backlund, presiding
Functional Section for Engineers in Government Practice
Publication of "Government Engineer Newsletter"
Report on Programs and Activities of Special Committee on Engineers in Uniformed Services
Plans to Promote Organization of State-Level Government Functional Sections
Report on Study of Merit System Coverage and Personnel Policies Applicable to Engineers in State Service
W. E. Gilbertson, P.E., Chairman, Functional Section for Engineers in Government Practice
Functional Section for Consulting Engineers in Private Practice
Plans for Regional Functional Section Meetings
Cooperative Work with other Organizations on Role of Consulting Engineer in Government Projects
Revised Functional Section Committee Structure Outcome of Self-Employed Retirement Legislation
L. M. Van Doren, P.E., Chairman, Functional Section for Consulting Engineers in Private Practice
Developments on Engineering Unionization
Sperry Gyroscope Co.—New York
Chrysler Airtemp—Ohio
RCA—Camden, New Jersey
Second Edition of **Professional Look at the Engineer in Industry**
Development of State Functional Sections
Richard G. Hoft, P.E., Chairman, Engineers in Industry Committee

12:15 p.m.—General Luncheon

Address: Hon. Floyd E. Dominy Commissioner U. S. Bureau of Reclamation

12:30 p.m.—Ladies Luncheon—Denver Athletic Club

Speaker: Jack Foster, Editor, Rocky Mountain News

1:45 p.m.—Professional Meeting Continues

PUBLIC RELATIONS GROUP

Vice President Rouse, presiding
Our New Film on Professionalism—Its Mission
John L. Pratt, P.E., Chairman, Public Relations Committee
The 1961 Engineers' Week Program
Warren C. Stadden, P.E., Chairman, Engineers' Week Committee

PROFESSIONAL RELATIONS GROUP

Vice President Stufflebean, presiding
Ethical Studies
H. W. Honefenger, P.E., Chairman, Ethical Practices Committee
Engineering Technicians' Program
A. C. Friel, P.E., Chairman, Committee on Engineering Technicians

ORGANIZATIONAL FUNCTIONS GROUP

Vice President Mann, presiding

Progress Report on Headquarters Housing Study
Donald C. Peters, P.E., Chairman, Headquarters Housing Committee

Concerted Membership Promotion
Harvey F. Pierce, P.E., Chairman, Membership Committee

Implementing the New Approaches to More Effective 3-level Communications
Frank W. Edwards, P.E., Chairman, State Society and Chapter Activities Committee

7:30 p.m.-8:00 p.m.—Cocktail Hour

8:00 p.m.-Midnight—Annual Dinner Dance

FRIDAY, OCTOBER 21

7:30 a.m.—Regional Breakfasts

8:00 a.m.-11:00 a.m.—Registration

9:00 a.m.—Professional Meeting Continues

POLICY OPERATIONS GROUP

Vice President Christian, presiding

Revisions to the 1960 Budget
Adoption of the 1961 Budget
W. Earl Christian, P.E., Chairman, Budget Committee

Professional and Administrative Policies Review
W. L. Hindermann, P.E., Chairman, Policy Review Committee

Report of Constitution and Bylaws Committee
George S. Rawlins, P.E., Chairman, Constitution and Bylaws Committee

Resolutions
L. W. Veigel, P.E., Chairman, Resolutions Committee

New Business
Adjournment

12:30 p.m.—Bus departure for Colorado Springs activities. (Box lunch aboard bus.)

2:00 p.m.-4:00 p.m.—Briefing and tour of the North American Air Defense Command

4:30 p.m.—Tour of Air Force Academy

Following Tour—Air Force Academy Officers Club: Cocktails, Buffet Dinner, Program—Return to Denver

Two Panel Sessions of Special Interest to Engineers in Industry and in Government Practice

9:00 a.m.-11:30 a.m. — **FRIDAY, OCTOBER 21**

THE PROBLEMS OF EDUCATION AND PROFESSIONAL DEVELOPMENT OF THE ENGINEER IN INDUSTRY

Program under the direction of L. M. Robertson, Manager of Engineering, Public Service Company of Colorado; and Professor Wilbur H. Parks, Chairman, Department of Mechanical Engineering, University of Denver.

Moderator: Carl E. Dahlquist, Stearns Roger Mfg. Co.

Panelists: Walter B. Hester, Director of Engineering, Stearns Roger Manufacturing Co.
C. P. Mullen, Vice President in charge of Research and Development, Gates Rubber Co.
L. R. Patterson, Vice President for Electric Operations, Public Service Company of Colorado
J. Bruce Wiley, Chief of Engineering Administration, The Martin Company

9:00 a.m.-11:00 a.m. — **FRIDAY, OCTOBER 21**

THE CURRENT STATUS OF THE PROFESSIONAL ENGINEER IN GOVERNMENT

Program under the direction of Marion C. Gingerich, United States Bureau of Reclamation; and George A. Prince, Colorado State Department of Health.

Moderator: Wesley E. Gilbertson, Chief of the Division of Engineering Services, U.S. Public Health Service

Panelists: Floyd E. Dominy, Commissioner of the Bureau of Reclamation, U. S. Department of the Interior
Walter E. Elder, Director of Region 10, U. S. Civil Service Commission
Grant Bloodgood, Assistant Commissioner and Chief Engineer, United States Bureau of Reclamation, Denver, Colorado.
William Hilte, Assistant State Personnel Director, State of Colorado
Representative of Municipal Government—to be announced.

11:00 a.m.-11:30 a.m.—First Meeting and Election of Officers of the Professional Engineers of Colorado
Functional Section for Engineers in Government Practice.

Officials for the fall meeting are, standing, l.-r.: C. F. Dwyer, advisor; Jack White, state board representative; E. V. Konkel, state board of directors; Paul H. Robbins, NSPE executive director; Hugh Hempel, national directors program; E. H. Carter, Entertainment Committee, and C. K. Kolstad, Colorado Springs Activities. **Seated:** E. W. F. Peterson, state society program; D. E. Fleming, Registration Committee; Sam Hawkins, general chairman; Mrs. E. W. F. Peterson, ladies activities, and G. C. Hahn, Finance Committee.

Thoughts on Professionalism...

By PAUL H. ROBBINS, P.E.
NSPE Executive Director

The Front Window

DURING the summer months NSPE has supplemented the spring meeting of state presidents with a series of regional meetings of state secretaries. The most common discussion of these secretaries' conferences is concerned with chapter activities. All recognize that NSPE's "grass-roots" philosophy places special responsibilities on chapters. In contrast to other engineering societies, most of NSPE's programs are effective in direct proportion to their implementation at the chapter level. Also in contrast to other societies, members of the profession and the public form their opinions of the professional society by the activities and individuals who make up the local chapter. So, in reality, the chapter is the "Front Window" of NSPE.

Often in the discussions of the state secretaries confusion has been evident in interpreting the term "chapter program." Some think of it as the program of the chapter meeting. Important as this is, more important are the total activities of the chapter which constitute its "program." While there are many elements which will occur to each member as to why the complete chapter program is important, a few serve to emphasize why each member needs to be concerned.

Status is an element frequently mentioned by engineers as needing improvement. This is accorded in proportion to the image held by the public of the practitioners of a profession. In most communities the activities of the engineers as a group do much to create this image. Thus, the program of a chapter is a direct contributor to this public image. Certainly a chapter of professional engineers which does little but meet monthly contributes little to public understanding of the important role played by engineers in our economy.

The chapter, too, provides an opportunity for members to know more about problems and professional activities with which the society is concerned. The retention and expansion of membership provide the opportunity for chapters, state societies and the NSPE to do more for members and the profession. But members need to be well informed to remain interested and intelligently discuss professional problems, both among themselves and with nonmembers. With the growth of NSPE, it must be remembered almost half the membership of NSPE have been members less than five years and many have not availed themselves of the literature available to them.

Chapter officers should bend all efforts possible to provide a total program that will inform the members of the professional society of its activities and at the same time contribute to the public image of engineering. To do this they need the help of every member. If each chapter could count on a modest degree of activity by each of its members, the Front Window of NSPE would display a profession worthy of public recognition and one of which each member would be proud.

Government-Industry Communications Hit

A "serious problem" in trying to keep informed on thousands of current Federally supported electronics research projects is faced by American companies, a U. S. Senate Subcommittee indicated recently.

The finding is based on dozens of detailed responses already received to a 9 point questionnaire circulated throughout the industry by a Senate Government Operations Subcommittee.

Commenting upon the initial volume of replies, Senator Hubert H. Humphrey (D. Minn.), Subcommittee chairman stated, "It is clear from the early answers that the Subcommittee is on the trail of a valuable subject, namely, what to do about this fact:—Private companies—both large and small—apparently find it extremely difficult to keep up with masses of information on current Federal research. This information is generated by the Department of Defense, the National Aeronautics and Space Administration, and other Federal sources which provide an estimated billion dollars of financial support for research development, testing and evaluation on electronics alone.

"The problem of availability of information is crucial," Senator Humphrey continued. "Upon companies being adequately informed as to Federal research work in progress, depends the ability of American free enterprise, universities and commercial laboratories to advance the 'state of the art' as rapidly as possible.

"Ignorance of 'who is already doing what and where' leads to unintentional, unplanned duplication of effort and wasteful delays in scientific progress."

Senator Humphrey explained why the Subcommittee has singled out the field of electronics research. "This is one of the most crucial fields affecting national survival. It is one of the fastest developing areas of science.

By Mrs. Clark A. Dunn, Chairman, Ladies Auxiliary Advisory Committee.

Except for picnics and social gatherings, there has been a summer lull in the activities of the auxiliaries to the professional engineering societies. Most of the chapters are inactive during the summer months.

The St. Louis Chapter reports a family picnic at Spring Forest with about 250 in attendance. The swimming pool was available for use and games were sponsored for adults and children.

The July meeting of the Nashville, Tenn., Auxiliary took the form of a Carrousel party and was held at the Richland Country Club. The theme was carried out in decorations for the luncheon and bridge party. There were more than 50 ladies in attendance.

Several state professional engineering meetings were held during the summer months which gave the auxiliaries an opportunity to get together and compare notes and discuss problems.

At the Georgia State Society summer outing held at Radium Springs, Albany, the ladies met informally and discussed auxiliary work being done in the chapters. They heard reports from their representative at the National meeting in Boston and from their area chairman. A three day outing with social events, tours, and banquets was enjoyed by all of the ladies at that delightful resort.

The Ladies Auxiliary to the Missouri Society of Professional Engineers met during the state meeting in Columbia. The three chapters all reported steady growth and progress. Each has a membership of more than 100. The St. Louis Chapter has given $700 to the men's chapter for their scholarship fund. The Jefferson City Auxiliary reported that their main purpose is to get better acquainted and to assist the men's organization. The Kansas City Chapter reported an active social program which is well attended. Mrs. Garvin Dyer, immediate past president of the Ladies Auxiliary Advisory Committee gave a report of the NSPE meeting in Boston, and Mrs. Arlow Ferry, outgoing chairman of the Southwest Area spoke on the activities in the nine states in her area.

Word from Mrs. Flo Jackson, president of the Arkansas State Auxiliary tells of many interesting social functions held for the ladies during the state meeting of the ASPE in June. Highlight was a one o'clock tea followed by a book review of the book, *Powder on my Nose* by Billie Burke, reviewed by Mrs. Ila Nixon.

The Oklahoma State Auxiliary met in May concurrently with the State OSPE meeting in Oklahoma City. The new slate of officers headed by Mrs. Gomer Bittle of Oklahoma City was installed. The state auxiliary is made up of 300 members from the six chapter auxiliaries. A $300 scholarship is given annually to an engineering student at one of the state universities. The ladies thoroughly enjoyed the entertainment provided by the Central Chapter Auxiliary of Oklahoma City. This included a luncheon at ValJeans and an evening of fun with the PE's at Frontier City, U.S.A.

Butrico Heads Study

Frank A. Butrico, P.E., member of the District of Columbia SPE, and a career sanitary engineer in the U.S. Public Health Service, will head the staff of the forthcoming National Conference on Water Pollution in the post of executive secretary. His appointment was announced by Dr. Leroy E. Burney, surgeon general of the Service.

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Registered Professional Engineer desires position with consulting firm. B. S. in Sanitary Engineering and 7 years experience. Married and 31 years of age. Minimum salary $10,000. Box 900, AMERICAN ENGINEER

Sales minded M. E., 43, registered, free to travel extensively, background in both contracting and independent consulting (air conditioning, heating, plumbing). Desire contact with aggressive contracting or engineering firm. Resume on request. Box 901, AMERICAN ENGINEER

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Large association in Washington has need for an engineer on its expanding staff. Person should be free to travel at least half time to work with local affiliates. Work will involve promotion, organization, speaking, trouble shooting and development of promotional literature. Salary dependent upon qualifications. Applicants please give age, education, experience, and salary expected. Reply Box 702, AMERICAN ENGINEER.

Miscellaneous

Opportunity to purchase profitable, well established engineering-surveying firm in S. E. Florida. Excellent staff and well equipped. Prospective purchaser shall be financially responsible. Box 800, AMERICAN ENGINEER.

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Engineers Hear Meteorologist

At a meeting arranged by John B. Blydenburgh, immediate past president of the Suffolk County Chapter, NYSSPE, Ernest J. Christie, chief meteorologist of the New York U.S. Weather Bureau office, demonstrates a rain and snow recording gauge to members of the Northport, N.Y., Rotary Club at its June meeting. Purchased by the Village of Northport, the device is expected to aid engineers in solving drainage, water-supply, and sewerage problems. Seen viewing the machine are, left to right: James J. Sweeney, P.E., park engineer, Long Island State Park Commission; Richard E. Allen, P.E., consulting engineer; Donald W. Chilton, P.E., Suffolk County Chapter NYSSPE president, and quality concrete engineer, Portland Cement Association; Fred J. Biele, P.E., consulting engineer; Mr. Blydenburgh; Dean C. Merchant, P.E., town engineer, Town of Smithtown; and Charles P. McFadden, P.E., town engineer, Town of Huntington.

West Virginia Chapters Active During Summer

West Virginia SPE chapters have held a series of meetings combining outings or dinner with business.

The T. Moore Jackson Chapter, Clarksburg, held a Spring Ladies' Night in June with dinner and dancing followed by entertainment by the Madrigal Singers of Clarksburg. Also, recently the Chapter paid a visit to the tipple and mine No. 2 of Clinchfield Coal Company at Dola, W. Va.

Appalachian Chapter, Beckley, enjoyed an annual picnic at the Beckwith 4-H Camp in Fayette County, while the New Martinsville Chapter held an out-of-doors social and barbeque to promote their July membership drive.

George Washington Chapter, Martinsburg, was entertained in June by Fred Eickenburger, project engineer at the Martinsburg Plant of the Corning Glass Company, who spoke on the problems of manufacturing glass.

Oklahoma U. Revises Engineering Curriculum

The University of Oklahoma College of Engineering has revised their curriculum, hoping to produce more efficient use of staff and facilities and to improve the training of students.

Dr. Willian H. Carson announced that two years of preparation had gone into planning a basic core of courses to be taught to all engineering students, regardless of their fields. The basic courses comprise about 75 per cent of the students total work load with the remaining work to be done in special areas. The revision was done to eliminate courses which overlap into each other.

AIEE Awards Medals To Leading Electricals

The American Institute of Electrical Engineers, world-wide representative society of the electrical engineering profession, has announced award of five of its medals to United States engineers for outstanding contributions. Four of the awards will be presented at the fall general meeting of AIEE at Chicago, Oct. 9-15. The fifth will be given to Dr. Mervin J. Kelly, retired chairman of the board of Bell Telephone Laboratories, Inc., during the winter meeting of the Institute in New York, Jan. 29-Feb. 3, 1961.

The award winners in addition to Dr. Kelly are: Dr. Ernest Weber, president of Polytechnic Institute of Brooklyn; Rudolf Kompfner, director of radio and electronics research, Bell Telephone Laboratories, Inc.; Dr. Selden B. Crary, system analysis engineer, Electric Utility Engineering Section, General Electric Company; Prof. Perry Borden, Electrical Engineering Department, University of Dayton, Dayton, O.

McCAMY CASE

(Continued from page 35)

own. Since the root of the trouble lies in the inadequacy of the present law, states Salvest, why not refer the whole matter back to the respective professional societies and counsel in the proceedings and let them endeavor to carve out a mutually agreeable model law for submission to the state legislature? This would not only save time and money for both sides, but would result in a statute carefully designed by those affected rather than an interpretation haphazardly produced by court action.

Whatever course may be followed, however, it is obvious to all parties that no completely painless solution exists, and that the eventual outcome is likely to produce a precedent in architect-engineer relations which will be felt throughout the country.—**End.**

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Conn. SPE Warned of Soviet Threat

Dr. Newman A. Hall, chairman of the Department of Mechanical Engineering at Yale University, warned members of the Connecticut SPE at their recent annual meeting that unless the United States is very alert, in ten years Soviet techniques and engineering may surpass ours.

Dr. Hall spoke on "Observations on Training of Engineers in the Soviet Union." His talk covered visitations by eight Americans to thirty Russian institutions. Although the visitors were somewhat limited in their activity, some distinct observations were made.

Russia is turning out three to four times as many engineers as the U. S., each trained to a greater degree of specialization, and stepping into positions with generally higher salaries, Dr. Hall said. Although many areas are not as up-to-date as the U. S. (Villages have no paved roads or autos; the housing shortage is acute in some areas; some buildings show poor construction) technology is constantly improving.

Perhaps the one most outstanding influence in the country is the driving will of the Russian people to improve, he said.

New England Programs Gain Youth Interest

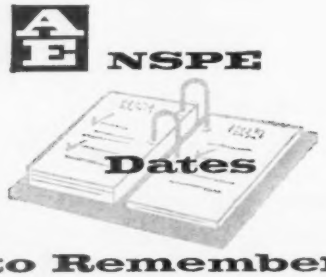
New England NSPE chapters have been sponsoring both competitive events and field trips to encourage prospective engineers into the profession.

The North Shore Chapter of the Massachusetts SPE, in conjunction with the Lynn *Daily Evening Item*, sent a group of 32 outstanding high school students on a tour of the General Electric Company's scientific laboratories in Schenectady, N. Y. The overnight jaunt marks the second annual Lynn *Item*-Engineers Science Scholars Fund trip. Two $50.00 U. S. Savings Bonds are awarded to the students who write the best reports of their observations.

The Southwestern Chapter of the Connecticut SPE contributed judges, money and awards to the April Southwestern Connecticut Science Fair, sponsored annually by the Science Education Association of Western Conn. Some of the awards sponsored by CSPE were for the best application of the physical sciences to the use of man.

The Late W. M. Andrews Honored by Texas SPE

Nueces Chapter of Texas SPE paid tribute to the late William M. Andrews in a special resolution passed following his death on August 9. Mr. Andrews, president of the San Jacinto Chapter in 1948, was a member of the State Board of Registration from 1948 to the present, and its chairman for three terms. He was a sponsor at the founding of the Nueces Chapter.



to Remember

Washington Society of Professional Engineers—Annual Meeting, September 15-17, 1960, Desert Inn, Richland, Washington.

West Virginia Society of Professional Engineers—Annual Meeting, September 22-24, 1960, Greenbrier Hotel, White Sulphur Springs, West Virginia.

Virginia Society of Professional Engineers—Annual Meeting, October 13-15, 1960, Monticello Hotel, Charlottesville, Virginia.

National Society of Professional Engineers — Fall Meeting, October 19-21, 1960, Statler-Hilton Hotel, Denver, Colorado.

Professional Engineers of Colorado —Annual Meeting, October 20-22, 1960, Statler-Hilton Hotel, Denver, Colorado.

Arkansas Society of Professional Engineers — Annual Meeting, November, 1960, Little Rock, Arkansas.

Puerto Rico Society of Professional Engineers—Annual Meeting, November, 1960, Building of the Colegio de Ingenieros, Hato Rey, Puerto Rico.

Professional Engineers of Oregon —Annual Meeting, November 11-12, 1960, Marion Hotel, Salem, Oregon.

Maine Society of Professional Engineers—Annual Meeting, November 12, 1960, Augusta, Maine.

National Society of Professional Engineers—Winter meeting, February 9-11, 1961, Hotel Ft. Des Moines, Des Moines, Iowa.

Iowa President Killed in Helicopter Crash

Arnold C. Christensen, 43, P.E., of Council Bluffs, Iowa, president of the Iowa Engineering Society, was among the 13 persons killed recently in the helicopter crash in Chicago that was termed the nation's worst helicopter accident.

Mr. Christensen and his wife had just returned from a short business and pleasure trip to Florida and Mrs. Christensen left Chicago by air to visit a sister in Minneapolis. Mr. Christensen, making arrangements to return to Council Bluffs, was on the helicopter, changing from one airport to another.

Mr. Christensen

A civil engineer, Mr. Christensen was serving his sixth year as a member of the school board. Also, he was active as vice president of the Chamber of Commerce, was a trustee of the Industrial Foundation, an officer of the Bennett Avenue Development Corporation, engineer for a number of drainage districts in the area and a member of the synodical council of the United Evangelical Lutheran Church.

At the time of his death, Mr. Christensen was driving hard in his capacity as president of the Iowa Society to build membership in that group. He had faith in the aims and principles of professional engineers and was determined to see that group grow in numbers and importance.

William F. Ryan, P.E.

William F. Ryan P.E., a former NSPE National Director from Kansas, died recently.

A past president of the Kansas Society of Professional Engineers, Mr. Ryan headed his own consulting firm, the Ryan Engineering Co., in Salina.

Gen. Barclay Speaks at Alabama Chapter Meeting

Major General John A. Barclay, deputy commanding general of the Army Ordnance Missile Command, said recently that one of the greatest problems facing the U.S. in its role as leader of the Free World is the growing shortage of scientists and engineers.

Speaking before the Northeast Alabama Chapter of the Alabama Society of Professional Engineers at the Veterans of Foreign Wars Club, Gen. Barclay said that the professional engineer should assume a personal responsibility to interest prospective young college students in the challenges and opportunities of an engineering career.

"I believe," he added, "that it is only by instilling into our young men the early realization that engineering is a living and viable science rather than a theoretical and academic study that we can interest people in the necessary numbers to pursue an engineering career."

As to the urgent need for engineering skills and talents, Gen. Barclay noted that ". . . no competent engineer today need want for personal challenge or question the limitless opportunities in his profession."

The General, a professional engineer himself, did add, however, that constructive steps have been and are being taken to improve the situation. In this endeavor, he explained, programs have been instituted among our colleges and technical societies to interest the entering college student in the fields of physical science and engineering.

"In addition," he continued, "we are exploring ways and means whereby we can accomplish in our academic institutions the same thing which we did in our industry and which, to a large degree, accounted for the economic growth of our country; namely, more output per man hour of direct labor."

General Barclay said that the Missile Command, in attempting to keep the college professor in touch with the "hard problems of daily engineering work" encourages the hiring of instructors for summer work. "This practice," he noted, "has been successful in bringing us high degrees of theoretical skill which are useful in our projects and has at the same time refreshed the teacher on the advancing technologies and their application in missile development work.

"In addition, we encourage visits of science teachers, particularly from high schools in the surrounding areas. Industry and engineering organizations," he ended, "might well follow suit to the benefit of our school system and the caliber of the future engineering profession."

Arthur S. Mannes, P. E.

Arthur S. Mannes, P.E., one of the founders in 1957 of the South Dakota Society of Professional Engineers, died at his home in Aberdeen, S. D., recently.

For many years Mr. Mannes was owner of the Mannes Engineering Co., in Aberdeen.

His widow, Mrs. Mannes, is a past president of the Ladies Auxiliary of the South Dakota SPE.

MEETINGS

(*Continued from page 32*)

because the percentage was already close to 100, but they made them smaller, better, less expensive. Engineers have had a hand in developing that fast-working, labor-saving work horse, the much heard of computer in its various forms. They goad the inanimate into doing many things that make life easier, more pleasant. But when it comes to the technical presentation, efficiency is lost sight of. Here they continue in the sadistic practice which is efficient only in assuring positive boredom. Here is a challenging problem. Is it too big for engineers? I'm sure it is not. Let's increase our efficiency by doing these things:

When Writing

1. Keep in mind the persons who are expected to read it. Write to them, remembering what you think they know and don't know.
2. Write in first and second person when it is natural for you to best express your thoughts that way. This may frighten you at first. You may believe it to be undignified. You may think it is egotistical. You know it is unorthodox. But forget these objections. The presumed dignity in third person writing is fictitious because you step out of character when you do this and then you just can't be yourself. Honest, sincere writing is not egotistical. Moreover, many sentences will turn out to be third person anyway.
3. Don't try to be funny. That is in bad taste. But don't avoid the humor that shows up along the way.
4. Make it as short as you can. Write it out first in the way

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PARKE-DAVIS

(*Continued from page 29*)

deep pride in the fact that we contribute to the manufacture of products that benefit mankind. Parke-Davis will meet the challenges of this highly technical industry by continuing to develop a highly professional Engineering Department.—**End.**

About the Author . . .

Mr. Dieter

Fred Dieter is superintendent of plant engineering for Parke-Davis & Company, the world's largest pharmaceutical manufacturer with headquarters in Detroit, Michigan. Before joining Parke-Davis six years ago, Mr. Dieter had previous engineering experience with the General Electric Company and the American Cyanamid Company. During World War II he served three years with the 79th U.S. Naval Construction Battalion (Seabees).

He was graduated from Pratt Institute in 1939 with a B.S.M.E. A member of N.S.P.E., he is a registered professional engineer in Michigan and New York. Residing in Birmingham, Michigan, he is educational vice president of Birmingham Toastmasters Club.

you think will make a good paper.

5. Review it to assure that it is logical. This will delete the extraneous reading matter that you first included.
6. Include the necessary aids, photographs, diagrams, formulae in such a way that your whole theme is easy to follow.
7. Write the same way you work — to accomplish a purpose, and not just to get it out of the road so you can do something else more interesting.

When Making Oral Presentation of a Paper

1. Make summary notes or cartoons that convey ideas to you at a glance.
2. Do not read your summary. Just tell the story.
3. Hit the high spots only.
4. Keep it short, interesting, alive.
5. If you use slides, make them so they can be seen and read from the back of the room, and don't overload them with information.
6. Don't tell stories that do not relate to a point you are trying to make.
7. Rehearse what you are going to say, but don't memorize words.
8. Do not pass out papers till the end of the meeting. You may, if you desire, send copies to a few select people in advance for discussion purposes. But try to pick people who will not come to the meeting and read an unintelligible prepared discussion. Sending out papers in advance is not so necessary anyway, if you make a clear presentation.—**End.**

LETTERS

(Continued from from 6)

drummed into me in my undergraduate courses. Had I not been pretty well grounded in the fundamentals I would have been at a loss just how to approach the new ones.

The only place in which to become proficient in a specialty is in the school of experience and by taking a specialized post graduate course in an institution of higher learning giving such a course. Trying to give such instruction as an undergraduate subject would mean that either the basic instruction or the specialty would be neglected and the student would come out half-baked in each.

I hope to hear more discussion on the subject.

HERBERT D. MENDENHALL, P.E.
Tallahassee, Fla.

Highway Research . . .

Dear Editor:

The article concerning yet another huge highway research program which appeared in the July issue, (page 8), caused me to wonder whether these were really engineers proposing this frivolity or a bunch of market development experts from the auto industry. Certainly any program which deals exclusively with expanding highway facilities will relate directly to new car sales.

It is also interesting to note that in layman's fashion they are attacking the highway safety problem at the top of the tree rather than directly at the roots. A logical engineering approach to this problem is as follows:

Step 1. By a rigid system of yearly examinations (paid for, incidentally, by the motorist and not the general public) all mentally and physically incompetent drivers are ruled off the highway.

Step 2. A rigid standard of auto design which is based primarily on passenger safety and not horsepower or pounds of chromium should be established and enforced Federally on all vehicles manufactured in or imported into this country.

Step 3. Only after the above steps have been implemented should more money be spent on construction research.

Honest critics of this program will see the following immediate faults:

- Neither of the first two steps provide as many of the necessary essentials for building a bureaucratic empire as does the third.
- Neither of the first two will increase employment or stimulate sales for the auto, rubber, oil, or concrete industries.
- The implementation of the first two might obviate the need for the third.
- Accidents are a popular means of combatting the population explosion.
- After all "the economic structure (of this country) is utterly dependent on it (highway transportation)" and we wouldn't want to do something logical and upset the economy.

ERNEST RATTERMAN, P.E.
Cincinnati, Ohio

ARCHITECTURE

(Continued from page 39)

engaged in a search for the same truth, the process is made easier.

Architectural Truth

The truths of engineering and economics have received much study. Since science and money are concerned directly with natural phenomenon and material possession, they are more readily understood than art. The building industry has devoted most of its attention to material concerns, because they are easier to comprehend and are, therefore, less controversial. Those few brave souls who have ventured far into the largely unknown field of aesthetics are misunderstood and sometimes ridiculed as impractical dreamers. It has been demonstrated here, however, that art is a vital part of buildings.

The search for objective criteria on which to judge aesthetics has been largely unsuccessful, because art is considered subjective, emotional and spiritual in which fields personal preferences are held to be inviolable. A man who seriously denies the mathematical truth that the sum of 2 and 2 is 4 is held to be mentally incompetent. But any opinion on aesthetic truth is said to be wild. Every man is an authority. If one accepts this proposition, it must follow logically that there is no such thing as aesthetic truth. The artistic nature with which a man is endowed is thus condemned to a never-never land of chaos where it ultimately reaches no conclusion, is never fulfilled, and thus has no purpose for existence. As was demonstrated by Aristotle, purpose is the final cause for the existence of anything. Or stated another way, nothing exists without purpose. Since man's artistic nature exists, it must have a purpose, must

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be fulfilled, must reach a conclusion. Conversely, this requires the existence of objective aesthetic truth, concerning which every statement is not equally valid.

The contemplation of objective truth may produce a subjective response, but the perception is subjective not the reality. Perception is conditioned by past experience and motivation, i.e., by what has been learned and what is desired. Optical illusions and perceptual distortions of many other types are convincing evidence that believing does not make it so. These delusions are removed only by learning, i.e., the application of reason to perception. The variety of conclusions drawn by individuals exposed to the same stimulus indicates that all have not previously reasoned in the same way and, accordingly, do not do so now. Right reason, by definition, produces ultimately only one valid conclusion, i.e., the clear perception of reality as it exists.

It may be argued that variety is the spice of life, that subjectivity makes life interesting. Variety is indeed the spice of life, but the interest lies in the great many truths to be learned rather than in every false perception of truth.

It is difficult and often frustrating to arrive at truth, but it none-

(Continued on following page)

About the Author . . .

(Continued from page 24)

Ireland, Holland, France and other European countries.

He returned to the United States in 1919 and entered the employ of Pogson, Peloubet & Co., becoming a partner of this firm in 1921.

He is a Certified Public Accountant of New York, New Jersey and Texas. He has been active in accounting organizations, having been vice president and treasurer of the American Institute of Certified Public Accountants, as well as chairman of the board of examiners and chairman or member of a number of committees, and received, in 1946, its award for service to the profession. He has been president of the New York State Society of Certified Public Accountants and of the New Jersey Society of Certified Public Accountants and has held other offices in these societies.

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theless exists and must be sought. Reasoning is the process of seeking truth. To hold that one opinion is as good as another is to deny the existence of truth and the value of reason. Certain truths are known, i.e., man has perceived certain realities. Such perceptions are called absolute knowledge. However, not all truths are known, and opinions regarding unknowns are admissible in the search for truth. Men must approach truth and in the final analysis accept responsibility for error. It is this willingness to accept responsibility which gives license to the expression of opinion.

The belief that there is a final and always relevant standard of belief, reality and action, is philosophical absolutism to which school many ancient, medieval and modern philosophers adhere. Among the greatest of these are Socrates, Plato, Aristotle, Mohammed, Thomas Aquinas, Spinoza and Newman. Many other philosophers have believed in the existence of ultimate reality, i.e., in ultimate truth which applies in all situations and at all times. Monism, mysticism and theism all accept by one or other means the existence of objective truth. Differences in the attitudes of these men and of their individual philosophies demonstrates that truth may be sought in many ways, but they all agree on the existence and accessibility of absolute truth.

It is difference in means which differentiates architectural styles. It is possible to know where one is going without knowing precisely how to get there, but if man is rational and persistent he can arrive at his goal and discover that some routes are better than others. It is beyond the scope of this article to demonstrate that one architectural route is better than another. We may, however, examine the methods of conveyance.

Architectural Methods

The various engineering systems and methods of economic analysis are fully explained in the published literature, but the controversial aspects of art have limited discussion of architectural aesthetics and somehow even the discussion of the predicaments (accidents) of aesthetic design. An architect can

find the approximate initial cost of most building items in any one of several estimating references, and engineering handbooks are legion, but rarely can one find useful aesthetic data.

The orderly arrangement of engineering and economic facts has in no way strangled imaginative design in these fields. On the contrary, it has freed practitioners of burdensome and laborious detail for more creative work. An orderly arrangement of aesthetic data might prove similarly useful.

A material's aesthetic properties, *per se*, are not controversial. Only the use of those properties is argumentative. Reasonable men do not believe that color itself is bad, but they may and do disagree about a particular use of color. In a list of uses for aesthetic properties one might find a use which he had not previously considered and which he finds desirable. At least he might notice some which he believes undesirable in which case he would be spared the time necessary to evolving it for himself.

The colors of materials are well known. However, where can one find how a gray brick appears with blue mortar? The designer should have available an aesthetic reference which would illustrate some of the color combinations which are possible. Such a catalog could never be complete, but a modest attempt would be of considerable assistance to designers, saving much time which could be devoted to other needs.

The number of pattern combinations available with any one material, is also very great. For example, the traditional masonry bond patterns are well-known, but the possibilities offered by perforated walls are infinite. "Special" shapes of tile for this purpose are becoming not so special, and yet by various combinations of units individuality can be attained. The drafting labor required to draw individual units in several combinations with others to produce a pleasing pattern consumes time and money.

The textures of brick and the textural effects of various mortar joint types are well-known, but what various wall textures may be

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attained by projecting and recessing headers in various patterns? The designers do not have time in any one case to study all of the almost infinite possibilities.

If one can be concerned about the shade of mortar, it seems equally logical to be concerned about the color of flowers also used to complement the beauty of the wall. Where is the reference orderly illustrating the many possibilities?

Such a reference manual would in no way invade the designer's domain. It would make no attempt to suggest that one solution is better than another, in the same sense that objective manuals of heat loss coefficients do not suggest that one U value is better than another for any given use. Manufacturers and designers should cooperate in the preparation of a basic "vocabulary of design" which would be as beneficial to architecture as are references on engineering and economics.

Others have pointed to the desirability of aesthetic research. The wonders of beauty which might be achieved by a major effort in this field are beyond the present imagination. The fruit of such labor might well be as revolutionary as atomic energy. What we need is an artistic "break through." The fantastic accomplishments of scientific research have gifted man beyond his comprehension. Why not also in art? Why do we pass the challenge to some future generation? There is now sufficient indication that aesthetic truth is capable of orderly pursuit. The golden section, the standardization of color specification, the recognition that certain colors do not harmonize, and other minutia of aesthetic data indicate the possibility. Order was one of the terms used by the ancients to define beauty. Why should we not pursue aesthetic truth by the orderly means of research? We spend billions for scientific research to make life physically comfortable, but practically nothing on research to make it beautiful. Such inconsistency would be remarkable in any creature but man. Somehow, he alone is excused from the order which governs all else in the universe. He alone has free will to obey or not the natural law, the instinctive judgment to do what is right.

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Responsibilities of Manufacturers

The natural law requires, first, that man preserve his material existence. Since his material existence is conditioned upon the satisfaction of his material needs, he must satisfy them or die. It has been demonstrated that three principles govern buildings. Man has no choice but to obey them, if he chooses to have architecture. What he must do he has a responsibility to do. Some of the responsibilities for shelter are frequently delegated to the architect, who in turn must delegate some part of that responsibility to manufacturers.

It may now be necessary to prove that the manufacturer of each building material has and must accept responsibility to pursue the three architectural principles with regard to his material. It is humanly impossible for an architect to evolve for himself all of the knowledge in all of the fields related to building. Refer to Table 1. He must, therefore, rely substantially on the fifth source of knowledge, which is the testimony of creditable witness. The architect must rely on the manufacturer to state truth about the material which he offers for sale. If the manufacturer does not, the architect must rely on someone who will. The manufacturer must either die, i.e., go out of existence as a manufacturer, or satisfy the architect's need, which need becomes his own. If he has a need necessary to his existence, under the natural law he must accept the responsibility of satisfying it. This responsibility compels the manufacturer to investigate, document and teach the aesthetic, engineering and economic truths regarding his material.

This requires research, development and promotion. Again the work in these fields is now confined largely to engineering and economics. Manufacturers conduct scientific research to keep pace with

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competition, but who sets the artistic pace? The architects have made their aesthetic need known, but they are not equipped to launch extensive research programs. While no manufacturer acts all are safe. It is, however, the nature of a capitalistic society that eventually a leader steps forward. When this happens in the field of architectural aesthetics, the veil of artistic ignorance will gradually rise through development to promote a grandeur of beauty in buildings not now imaginable, and that manufacturer will be richly rewarded for his leadership.

Conclusion

As was previously stated each architectural cause seeks the same truth. The designer, manufacturer, builder and client all want beauty, safety and economy in building. The search for beauty should be as vigorous and orderly as the search for scientific truth. As such research becomes successful there will be more agreement on what is beautiful in architecture. Presently, the satisfaction of a church building committee or a school board is no small architectural task. In a democratic society no one dictates, not the individual and not the majority. We compromise on aesthetics, because the principle is not fully established. We do not have absolute knowledge of aesthetic truth. We can prove the existence of that truth, but we do not completely understand it. Our search for this truth has been unorganized, and we have found little. Because we know more about science and economics, we compromise less in these fields. When we know truth, we cannot ethically compromise on the principle stating that truth. Those in the sciences should be humble in their limited knowledge, realizing that they are only a little better informed than their colleagues in the arts. When we have seen God, we will know what is beautiful and a great many other things.—**End.**

About the Author . . .

Mr. Grimm

Clayford T. Grimm, P.E., is manager of the Architectural and Engineering Department in the Building Materials Division of the Zonolite Company in Chicago, Illinois. The Zonolite Company mines and manufactures exfoliated vermiculite for use in thermal insulation, fireproofing, acoustical plaster, and lightweight concrete. For many years Mr. Grimm was associated with the brick and tile industry and recently resigned as Assistant Director of Engineering and Technology of the Structural Clay Products Institute, Washington, D.C., to accept his present position with the Zonolite Company.

Mr. Grimm graduated in architectural engineering in 1919 from the Catholic University of America in Washington, D.C. He is licensed to practice engineering in Texas and the District of Columbia. He is a member of the National Society of Professional Engineers, the Building Research Institute, and the American Society for Testing Materials.

Among Mr. Grimm's many technical articles and papers is the recent "Ultimate Cost of Building Walls." His articles have appeared in professional journals.

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Progress in Products

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PHOTOELECTRIC RELAY — Item 31

A rugged, heavy-duty, highly sensitive, "foolproof" photoelectric relay line has been introduced and it is designed to operate under adverse conditions. It is considered ideal for use in atmospheres dense with foreign matter and where an extraneous light source could cause false operation in a conventional unit. Relay uses include: Door control, conveyor control, and intrusion alarms. The relays can even be used in the presence of paint spray and to detect the position of parts in ovens, kilns, or furnaces.

COMPACT TURBIDIMETER — Item 35

A compact new easy-to-use model of the Wagner Turbidimeter for determining the fineness of Portland cement, has been designed. The turbidimeter, which includes all the apparatus needed in the test, determines the fineness of Portland cement as represented by specific surface expressed as total surface area in square centimeters per gram of cement. The test conforms to specifications covered by American Society of Testing Materials procedure No. C-115 and by the American Association of State Highway Officials designation T-98.

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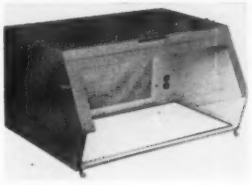
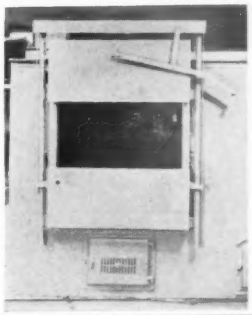


CHARGING DOORS — Item 36

Design improvements on certain incinerator models equipped with one-piece and split-guillotine type charging doors have just been announced. The new features are now included on current production models and have been added at no increase in model prices. Split guillotine doors now feature a simple, effective tube and saddle guide. Saddles on the sides of the door halves ride along vertical tubes.



WASH-OFF FILM — Item 33

A new polyester wash-off film which produces erasable ink-black lines from pencil originals, and permits ink or pencil-drawn additions is fully described in a product data sheet now available. The new drafting material—called Dupro Polyester Film—is a combination of Herculene drafting film and Dupro emulsion coating. The data sheet—in a series of photos—shows how ink-like "second originals" on Dupro are made from pencil drawings, with lines that won't smudge yet are easily removed with a soft, moist eraser. Additions or corrections are then drawn on the Dupro surface and the revised reproduction may be used to produce sharp reprints at high machine speed.

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This feature describes new products of general interest to professional engineers. For further information, circle the item number in the Readers' Service Dept. and mail to AMERICAN ENGINEER.

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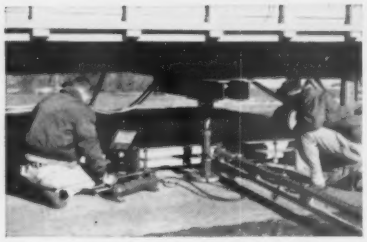

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